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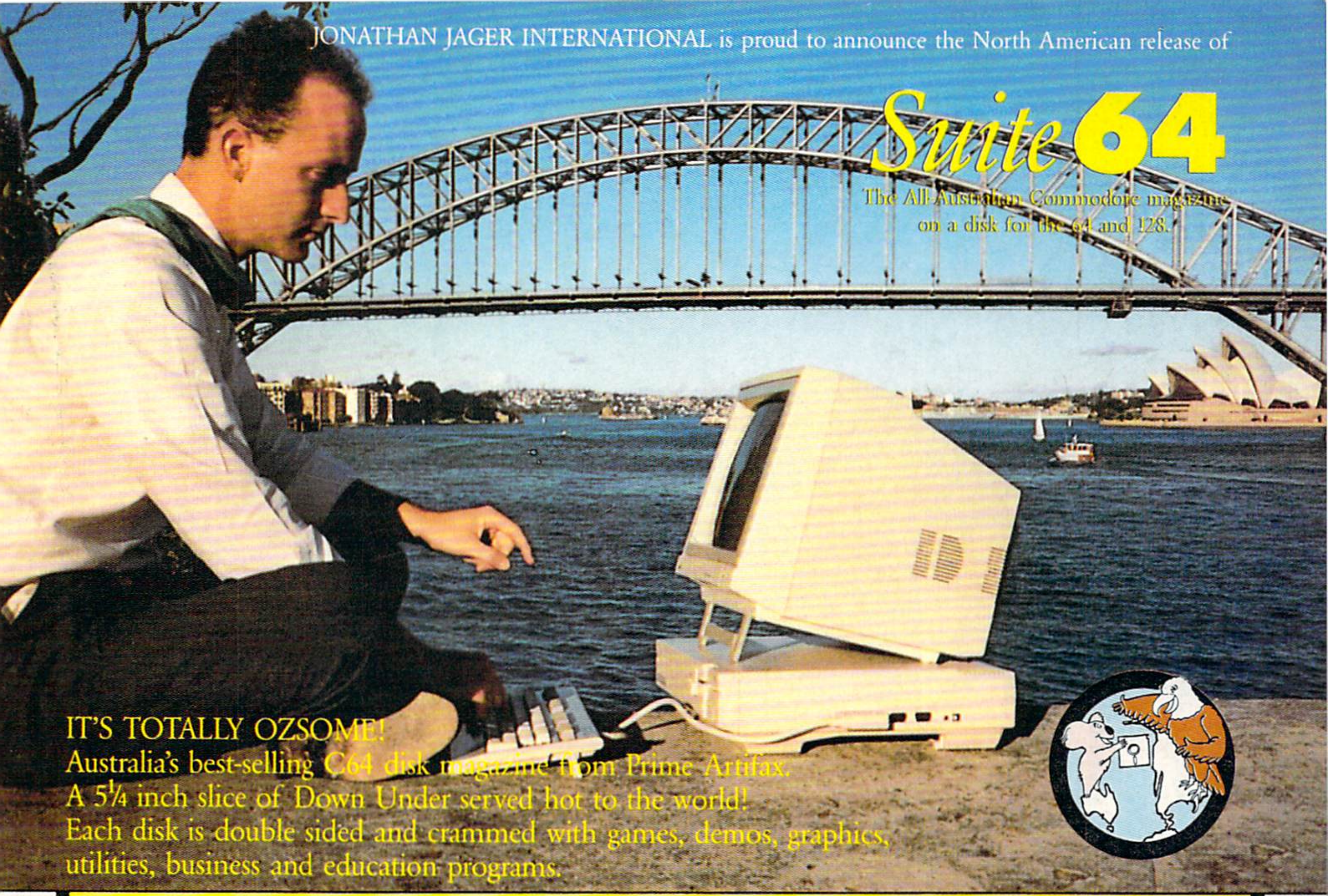
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Features of ISSUE ONE!

ENTERTAINMENT
- Forest Raiders — High Speed Danger*
- Road Block — Action Strategy*
- Bert The Bug — Family Fun

UTILITIES & TOOLS
- Track & Sector Spreadsheet — DOS Utility*
- Screens to Basic — Captures Screen to Print Statements*
- Nice Lister — Format Printouts Control Codes*
- Function Key — Gives C64, C128 F-Keys*

EDUCATION
- Typing Tutor — Learn to Touch Type (includes game)
- 3D Plot — Create 3D Shapes Using Formula

BUSINESS/HOME
- Appointment Manager — Diary/Calender†
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AUGUST 20, 2087

Nothing could be worse than this god-forsaken, radioactive desert.

More Sniperdroids! All tracking me with them death glares. And them Uzis. They're weird trigger-twitchin' folks. I suspect it's them poisoning the water.

Or maybe it's those Leather Thugs. Heck, I don't know anymore. I heard they have a bunch of civilians cut off east of Ranger Center, which is where I'm headed. Hope not. They want me dead. Like every other mutant this side of Vegas.



The worst part is, I'm getting to be as bad as they are. You wouldn't believe some of the ways I've learned to kill. I hang out in sewers, and my best friend is a MAC 17 submachine gun.

Gramps talked about life before the nuclear war. All I know is I don't want others living this way. Gotta rebuild this desert right. Gotta make it so you can sleep with your eyes closed.

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AUGUST 1988, *Volume 9, Number 8*



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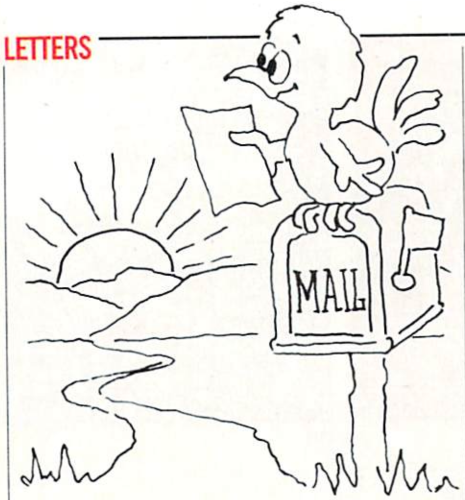
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FEATURES

COVER STORY

COVER PHOTO: *Dennis Degnan*
Computer Graphics: *Louis Johnson*
Software: *Photon Paint* by MicroIllusions
Video Wall courtesy of AV Unlimited, Inc., Philadelphia

DEPARTMENTS



To the Editor:

So Dale Davis (Letters, May 1988) is over 40 and hates change. How Sad! I am 75 and I love change. I may be older in years than Dale, but I am mentally younger.

There is an ancient Chinese parable that goes like this:

The all-powerful Emperor called in all the Empire's magicians and wise men. When they were assembled, he said, "I want to know the one indisputable fact that was true yesterday, is true today, and will be true tomorrow. Five words, no more, no less. You have three months to bring that fact to me. Succeed and you shall have riches, failure means death."

Three months later, they met again, and the Emperor called for the answer. The magicians and the sages unfurled a tapestry upon which were the words: "And This Too Shall Change."

E. Stuart Johnson
Athens, AL

To the Editor:

Please do us all a favor and tell your Amiga Public Domain writer, Graham Kinsey to wake up and smell the coffee.

His review in the Amiga Public Domain Update (April 1988), while pretty thorough, featured an article about a PD program called "NAG" in which he [said], ". . .Nag can serve as an adequate substitute for your wife, mother or whoever . . ."

Does Mr. Kinsey really believe that NAGS are not only predominantly female, but can be "adequately substituted" by a program that pesters you to tend it ASAP?

Mr. Kinsey, DO have another cup of java, no make that a third cup, no, how about a Danish with it, no, yes, c'mon, (how 'm I doin', Mr. Kinsey, after all, I am both a wife and mother. . .)

L. Balvin
Papaikou, HI

To the Editor:

This is in response to a letter by Carl Poland, printed in the June issue of *Commodore Magazine*. The letter concerned my review of Xetec's *FontMaster 128*, which appeared in the April issue of this magazine. I feel Mr. Poland is in error on several points.

My assertion that *FontMaster 128* is "absolutely" the best word processor available for the 128 was my opinion. Obviously not everyone has to agree. But *in my opinion, FontMaster 128* offers the best editing and printing functions of any word processor for the 128.

As for Mr. Poland's complaint that *FontMaster 128* does not preview in 80 columns (contrary to my claim), I suggest he read pages 61-62 in the manual. True, the preview shows only 53 columns at one time, but a single keystroke allows the user to view the rest of the page. A full 80-column *graphic* print preview is available with hardly any effort.

Finally, I have not been able to duplicate Mr. Poland's problems when exiting preview mode. I suggest he double-check the word processor's setup screen and again refer to pages 61-62 in the manual. *FontMaster 128* will not work with certain fast load cartridges, such as *Mach 128*, so this should also be considered.

Nothing beats word processing on the 128, a system that has been blessed with some of the finest productivity programs on the market (at any price). For true word processing junkies, the perfect software does not exist. But in *my opinion, FontMaster 128* offers the best value.

Scott A. May
Columbia, MO

To the Editor:

I thought that your publication would be interested in knowing about an Amiga training school here in the Phoenix area. They offer courses in desktop publishing, music, business programs like *WordPerfect, MaxiPlan* and *Analyze*, graphics programs like *Videoscape 3D, DPaint II, Digi-Paint, Photon Paint, Deluxe Video*, and others. I believe this is the first school of its kind for Amiga users and your readers would love to hear about it.

Sincerely,
Patrick Mondout
Mesa, AZ

Editor's Response: *Thanks for bringing this to our attention. Interested readers can contact Ken Costello, 4636 E. Elwood, Suite #6, Phoenix, AZ 85040 for more information.*

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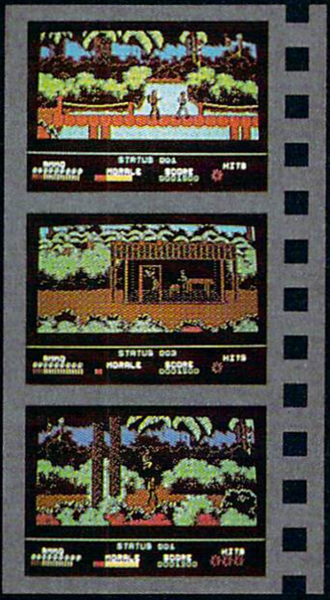
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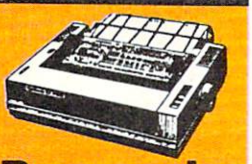
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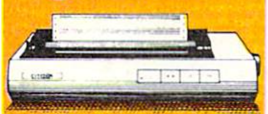
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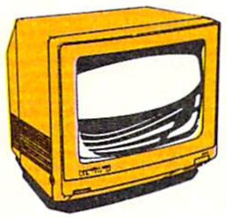


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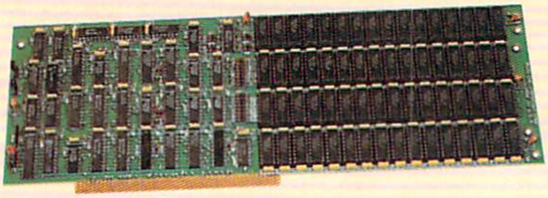
COMDEX/Spring

Twenty-five third party hardware and software developers convened in the Commodore booth at COMDEX/Spring Atlanta May 9-12, to present video, publishing, CAD, business and educational applications on the Amiga. Among those present:

• NewTek with **Digi-View 3.0:** new features include overscan for a maximum of 768 × 480 resolution, half-brite mode, and line art mode. For details contact: NewTek, Inc., 115 W. Crane St., Topeka, KS 66603. Phone: (913) 354-1146.

• Oxxi, Inc. announced the availability of **MaxiPlan 1.9.** The spreadsheet's refinements include a Blitter option which allows the user to add a second color in the border or data area of a chart. Registered users of version 1.8 will automatically receive the upgrade. French and German language versions of **MaxiPlan** are also in the works. For further information contact: Oxxi, Inc. 3428 Falcon Ave., Long Beach, CA 90807. Phone: (213) 427-1227.

• Progressive Peripherals & Software announced an agreement with ASDG, Inc. to market their 8MB RAM expansion unit for the Amiga 2000, **ProRAM 2000.** Configurable to two, four, six or eight megabytes, **ProRAM 2000** has a suggested retail price of $399.95. For details contact: Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204. Or call: (303) 825-4144.



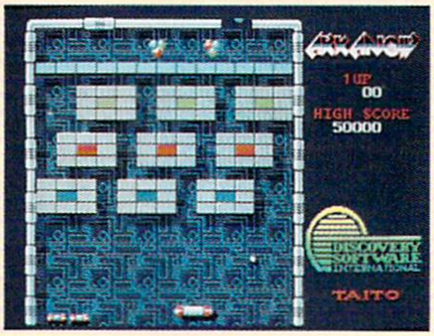
• Electronic Arts previewed **DeluxePhotoLab,** a paint and print program for the Amiga which provides more colors, larger canvases, greater graphic capabilities and palette manipulation tools. Users can produce graphics in any Amiga mode (including HAM) up to 10 feet by 10 feet in size with any Amiga-supported printer. **DeluxePhotoLab** was scheduled for release in July at a retail price of $149.99. For further information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Phone: (415) 571-7171.

• Haitex Resources announced that they will be marketing **X-CAD** (developed by U.K.-based Taurus-Impex) in North America. **X-CAD** is a general-purpose Amiga CAD program for architectural and mechanical designers. The program uses a verb-noun-modifier command structure (e.g., DRAW LINE PERPENDICULAR). **X-CAD** has a suggested retail price of $599. For further details contact: Haitex Resources, 208 Carrollton Park, Suite 1207, Carrollton, TX 75006. Or call: (214) 241-8030.

• Future Touch directed traffic with their new touch screen system on the Amiga that mapped out the stations in the Commodore booth. Information was available on each product category, manufacturer and title on display. For details contact: Future Touch, 192 Laurel Rd., E. Northport, NY 11731. Phone: (516) 757-7334.

Other Amiga developers represented in the Commodore booth included: Associated Computer Services with **Station Manager;** B.E.S.T. with version 3.0 of **B.E.S.T. Business Management;** Brown-Wagh Publishing displayed Zuma Group's **TV*TEXT 1.11** and **TV*SHOW 1.02;** Byte by Byte showed **Sculpt-Animate 3D** with Computer Systems Associates' **68030 board;** Gold Disk with **Professional Page version 1.1;** MicroIllusions showed **Photon Video** and **Photon Paint** with a Tektronix printer; Software Visions, Inc. with **Microfiche Filer;** SubLogic with **Jet;** and WordPerfect Corp. demonstrated **WordPerfect** and **WordPerfect Library.**

• Discovery Software introduced a new version of their best-selling **Arkanoid** with 33 new levels and a reduced price of $29.95 (down from $49.95). Another new feature allows players to slow the action down to a pace they can handle. Discovery will try to implement this feature on subsequent releases as well for younger players or those with physical disabilities. Discovery was also showing their latest Amiga release, **Zoom!** (see review on page 30). In addition, they are now providing a 30-day unconditional money-back guarantee for **Arkanoid** and **Zoom!** purchasers. For more information contact: Discovery Software, 163 Conduit St., Annapolis, MD 21401. Phone: (301) 268-9877.



Commodore also unveiled its new Professional Series III line of MS-DOS-compatible computers. The **Commodore PC10-III** and **PC20-III** are both IBM XT-compatible and feature built-in graphics, color and mouse support. Both new models include one internal 5.25-inch drive and 640K RAM. The **PC20-III** also includes a 20MB hard disk drive. The **PC10-III** retails for $999; the **PC20-III** for $1,499.



Amiga Developers Conference

At the Amiga Developers Conference held in Washington, D.C. a week prior to COMDEX, Commodore announced that 600,000 Amigas had been shipped worldwide. Over 350 hardware and software developers attended the three-day conference sponsored by Commodore Amiga Technical Support (CATS). The Amiga development community has produced over 1100 software programs for the Amiga since its premier three years ago this month. Think about it, that's more than a program a day.

The Shadows of Mordor

The Shadows of Mordor is the third J.R.R. Tolkien adventure for the Commodore 64 from Addison-Wesley Publishing. Adapted from Book IV of *The Two Towers,* the adventure has more than 80 locations to explore in a quest to keep the Ring from the Dark Lord, Sauron. The package includes a map of Middle-earth and a guide to Middle-earth laws, lore and language. **The Shadows of Mordor** retails for $29.95. For more information contact: Addison-Wesley Publishing Co., Reading, MA 01867. Or call: (617) 944-3700.

Accolade Hits

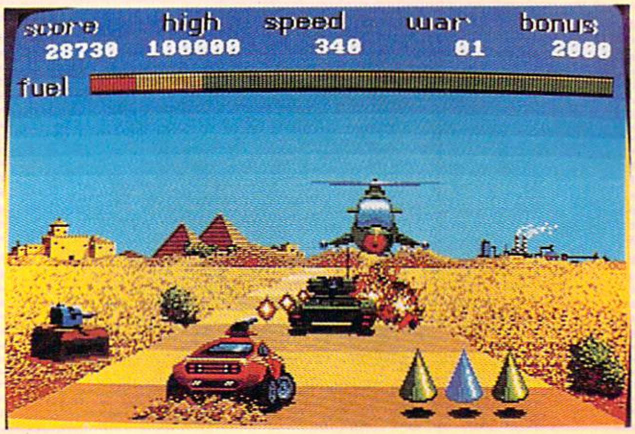
Accolade, Inc. has launched "All Time Favorites" a new product line of their entertainment bestsellers. Commodore 64 All Time Favorites include **HardBall!, Ace of Aces, Fight Night,** and **Killed Until Dead.** Each title will be priced at $14.95. For more information contact: Accolade, Inc., 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128. Phone: (408) 985-1700.

Suite 64

Prime Artifax, publisher of Australia's popular disk-based magazine **Suite 64,** is making their product available in North America. The 5.25-inch slice of Down Under features entertainment, educational, utilities and business software and a point-and-click menu system. **Suite 64** is available for $9.95 per issue. For details contact: Jonathan Jager International, P.O. Box 29874, Richmond, VA 23229. Phone: (804) 262-8897.

Alternate Reality: The City

Electronic Arts has begun shipping **Alternate Reality: The City** for the Amiga. Developed by DataSoft, the program is the first in a series of futuristic, fantasy role-playing games. This episode begins as you are captured by aliens who leave you on the portal of The City of Xebec's Demise. Build your character's personal attributes in **Alternate Reality: The City,** and you might have a chance of surviving subsequent installments of **Alternate Reality.** For details contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Or call: (415) 571-7171.



Fire & Forget

Titus Software's latest release is **Fire & Forget** for the Amiga. The game finds the world on the brink of disaster; to save it you must man Thunder Master, the ultimate fighting machine for the nuclear age. **Fire & Forget** carries a suggested retail price of $39.95. For more information contact: Titus Software Corp., 20432 Corisco St., Chatsworth, CA 91311. Phone: (818) 709-3693.

IntroCAD Upgrade

Progressive Peripherals & Software, Inc. has released version 2.0 of **IntroCAD,** their popular Amiga CAD program. Improvements include the ability to store CAD drawing files in *Aegis Draw* format for use in desktop publishing programs. Printer support has also been expanded. To obtain the update, **IntroCAD** users should send their original disk along with $10 (for handling) to: Upgrade Department, Progressive Peripherals & Software, Inc., 464 Kalamath St., Denver, CO 80204.

Rocket Ranger

Cinemaware's latest "interactive movie" **Rocket Ranger** is now playing on an Amiga near you. The Nazis have won WWII, and a group of 21st century scientists are counting on you (and their time travel device) to change the course of history and save mankind. This melodramatic plot is heightened by chapter divisions with a cliffhanger in every chapter. **Rocket Ranger** retails for $49.95. For more information contact: Cinemaware Corporation, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362. Phone: (805) 379-9401.

T.H.I.S.

Micro Aided Designs has released version 2.0 of **T.H.I.S.** (Technological Highbred Integrated System) for the Commodore 128. **T.H.I.S.** enables 128 users to create drawings ranging from architectural drawings and mechanical blueprints to banners, signs and greeting cards. The program has a maximum virtual screen resolution of 960 x 536 pixels per page and up to seven separate pages to draw on. For details contact: Micro Aided Designs, P.O. Box 1982, Placentia, CA 92670.

Free Spirit Releases

Free Spirit Software, Inc. has released another collection of adventure games on one disk. **Moffatt's Adventure Disk #2** contains *Temporal, West, Death Valley,* and *The Lighthouse.* The disk is available for $19.95 from: Free Spirit Software, Inc., 905 W. Hillgrove, Suite 6, La Grange, IL 60525. Phone: (800) 552-6777.

GLAREFREE

Visual System Developments has introduced **GLAREFREE,** an aerosol spray that reduces UV-B radiation and cuts glare and static on your monitor. The spray is comprised of a durable polymer that absorbs UV-B radiation and diffuses glare; additional ingredients limit static. Supplied in a 3.2 ounce aerosol can, one application of **GLAREFREE** provides a permanent coating. For further information contact: Visual System Developments, Inc., P.O. Box 367, 18265 S. Midhill Dr., West Linn, OR 97068. Phone: (503) 635-5948.

Consumer Electronics Information

The Consumer Electronics Group of the Electronic Industries Association has made available three free pamphlets to help consumers get the most out of their consumer electronics products. The three pamphlets are: "How to Save Money and Take Care of TVs, VCRs, Camcorders, Audio Equipment, Computers, and Other Electronic Products," "How to Choose and Use Accessories," and "How to Install, Connect, and Expand TVs, VCRs, Telephones, Audio Systems, and other Consumer Electronic Products." Single copies of the pamphlets can be obtained from EIA/CEG by sending a self-addressed business-size envelope with appropriate postage (Care Products 25¢ postage, Accessory Products 45¢ postage, Hookup and Expansion 65¢ postage) to: Electronics Industries Association, Name of Pamphlet, P.O. Box 19100, Washington, D.C. 20036.

Activision Changes

Activision has moved to a new address and adopted a new corporate name. The company, now known as Mediagenic will continue to market the Activision line of entertainment software. Mediagenic's new address: 3885 Bohannon Dr., Menlo Park, CA 94025. Phone: (415) 329-0500.

EA to Distribute SSI

Electronic Arts has announced an exclusive distribution agreement with Strategic Simulations, Inc., publisher of strategic war simulations and fantasy games. Under the agreement Electronic Arts has made a minority investment in SSI and will distribute upcoming SSI titles including **Advanced Dungeons & Dragons** in the U.S. and Canada. "This represents the largest affiliated labels deal made to date," said Trip Hawkins, president of Electronic Arts. Hawkins compares himself and Joel Billings, president of SSI, to two military generals, "Both Joel and I have been in this industry for more than ten years and in that time have learned that in some situations it is much more effective to join forces and make your advances as allies."



Correction: The News Section in the June issue of *Commodore Magazine* listed an incorrect address for CW Data Labs, makers of **Tisar 128**. The correct information is: CW Data Labs, 1632 Napfle Ave., Philadelphia, PA 19111. Phone: (800) 537-LABS.

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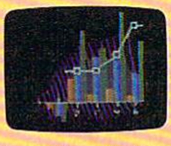
Subscribers Love LOADSTAR!

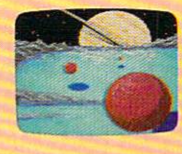
"The music and graphics are totally superb. Some of the best I have ever seen" .... Steven T. Boston

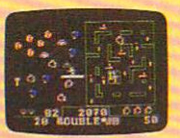
Contents of Issue #49

- **Power Budget** Keep track of your spending, make projections.
- **Down, Down, Down** Can you survive six levels of acid mines?
- **Robot Rescue** As Mandar II, rescue our ambassadors from the Vordax.
- **Notepad** Two text screens for notes.
- **Pop-DOS** LIST one BASIC program from another, among other things.
- **Cris-Cros Poker** Play 10 hands at once.
- **Plus** Chomp, Animal, Joystick Art, Statistics Analyzer, Template Maker, Invisible Aid 128, 2 Potato, *and more!*

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Compiled by Louis F. Sander

LOU SANDER'S TIPS & TRICKS

This month we feature some very useful tips for getting the most from Commodore's Magazine Entry Programs, plus numerous submissions that were sent to me on Q-Link. As we've mentioned before, you can send your tips by Q-Link E-Mail to LFS. Be sure to include your full name and address, since we have no way of sending checks by E-Mail!

If you'd rather send your treasures on paper, put each of them on a separate sheet (preferably typed), with your name and address on each one, and mail them to:

Louis F. Sander
P.O. Box 101011
Pittsburgh, PA 15237

Slow listing: If you know this one, you think *everybody* knows it. If you *don't* know it, you think it's a miracle.

To slow down the listing of programs or directories, press the CTRL key in 64 mode or the COMMODORE key in 128 mode. Unfortunately, this trick won't work in CP/M mode.
Sebastian Camberos P.
La Paz, Bolivia

Label the programs you type: I have a very large collection of programs from this column and from computer magazines in general. The programs almost always had an accompanying article that explained them or gave useful information about their use. Unfortunately, it's very difficult to remember where I got most of the programs, so I'm out of luck when I want to go back to the original source.

To get around the problem, I now record the source of every program whenever I type it in. I put a REM statement in an unused line number at the very start of each program. The REM consists of the magazine name, the month, the year and the page number of the original article.

Like most such useful habits, I wish I'd started doing this years ago.
Don Halloran
Bloomfield, NJ

128 Magazine Entry Program tip: If you've typed in a *Commodore Magazine* program without using the Magazine Entry Program, it's not too late to gain the benefits of automatic proofreading. Just redefine Function Key 1 by executing

KEY 1, CHR$(27) + "K' "

Then list a section of the program. For each line, type F1 and the checksum. When you press RETURN, the Magazine Entry Program will do its thing.
IMD Walrus
Q-Link

Improving the Magazine Entry Program: Each issue of *Commodore Magazine* includes two Magazine Entry Programs on its final pages—one for the 64 and another for the 128. By automatically detecting typing mistakes, the Magazine Entry Programs make it easier to type the other programs that are printed in the magazine.

In addition to appearing in *Commodore Magazine* each month, the Magazine Entry Programs are available on Q-Link and from many user groups and bulletin boards.

When a printed program is set up for use with a Magazine Entry Program, each of its lines ends with an apostrophe followed by a checksum of four letters. (Due to the shortness and simplicity of the programs in "Tips & Tricks," we seldom provide the checksums here. They are, however, provided for almost every other program in the magazine.)

When you load and run one of the Magazine Entry Programs, it puts a machine language program in memory. You then execute a SYS statement to activate the machine language program and a NEW command to remove the Magazine Entry Program itself.

Once the SYS has been executed, the invisible machine language program carefully checks each BASIC line that you enter. It gives audible and visible alarms if the BASIC line lacks the proper checksum. The usual cause of this, of course, is a typing error in the BASIC line itself.

There are ways to disable the automatic checking and other ways to reactivate it once disabled. Complete operating instructions are printed in the magazine each month.

All in all, the system is simple, accurate and useful. If you haven't tried it yet, you ought to give it a whirl.

But even the best programs can be improved upon, and these are no exception. The accompanying listings provide some changes that will make the Magazine Entry Programs easier and faster to use.

The short listings that start "1 REM IMPROVED . . ." are lines that are to be *added to* the Magazine Entry Programs printed in the magazine. To add them, you must first put the ap-

propriate (64 or 128) Magazine Entry Program into memory, either by typing it or loading it from disk. Then choose the appropriate (64 or 128) listing from this article and type lines 1-140, which will be added to the original program. (Actually, one of the lines in each listing *replaces* a line in the original program.)

If you're typing the new lines for the 64, don't overlook the semicolons at the ends of lines 6 and 102.

Notice that the new program starts with a line identifying it as an improved version. Save it, giving it a name that will differentiate it from the original.

The improved programs automate your NEW and SYS by printing them onto the screen, where you can execute them by pressing the RETURN key. This reminds you to execute these two important commands, and saves some typing when you do it. The 128 version even puts a line of instructions in a window at the top of the screen, where it stays visible as you enter your other programs.

But the new programs have an even better feature—they let you save the machine language programs directly, rather than in the original BASIC loader form. This makes for faster loading every time you use them. (For the 64, loading time is cut from 80 seconds down to five!) To activate this feature, just answer "Y" when asked if you want to save an ML version.

The Autoloader program accompanying this article automatically manages the machine language programs. It detects whether it's running on a 64 or 128 then loads and executes the appropriate machine language code. It even displays the commands for disabling and reactivating the Magazine Entry Programs.

To use the Autoloader, just be sure the machine language version of the proper Magazine Entry Program is on the disk in your drive. Then load and run the Autoloader, and everything will take care of itself.

If you want to be completely equipped to work with the Magazine Entry Programs, you should set up one disk that contains all the programs you'll need. Here is what should be on it:

1. The original 64 Magazine Entry Program, as it appears in the back of the magazine.

2. The original 128 Magazine Entry Program.

3. The improved 64 Magazine Entry Program (the one with lines 1-140 for the 64 added).

4. The improved 128 Magazine Entry Program (with added lines 1-140 for the 128 added).

5. The 64 machine language version, made by running #3 above and answering "Y" at the prompt. Its name will be MAGENTPROG64.ML.

6. The 128 machine language version, made by running #4 above and answering "Y" at the prompt. Its name will be MAGENTPROG128.ML.

7. The autoloader program that accompanies this article.

With these seven programs, you'll be able to do anything you'd like, including going back to the originals as printed in the magazine. In most cases, you'll probably just use the autoloader, which in turn will use MAGENTPROG64.ML or MAGENTPROG128.ML, depending on the machine it is being run on.

This article includes tips from Larry A. Sexton, Harriman, IN; Grzegorz Szmidt, Warszawa, Poland; and Jeffrey A. Seay, Maumelle, AR.

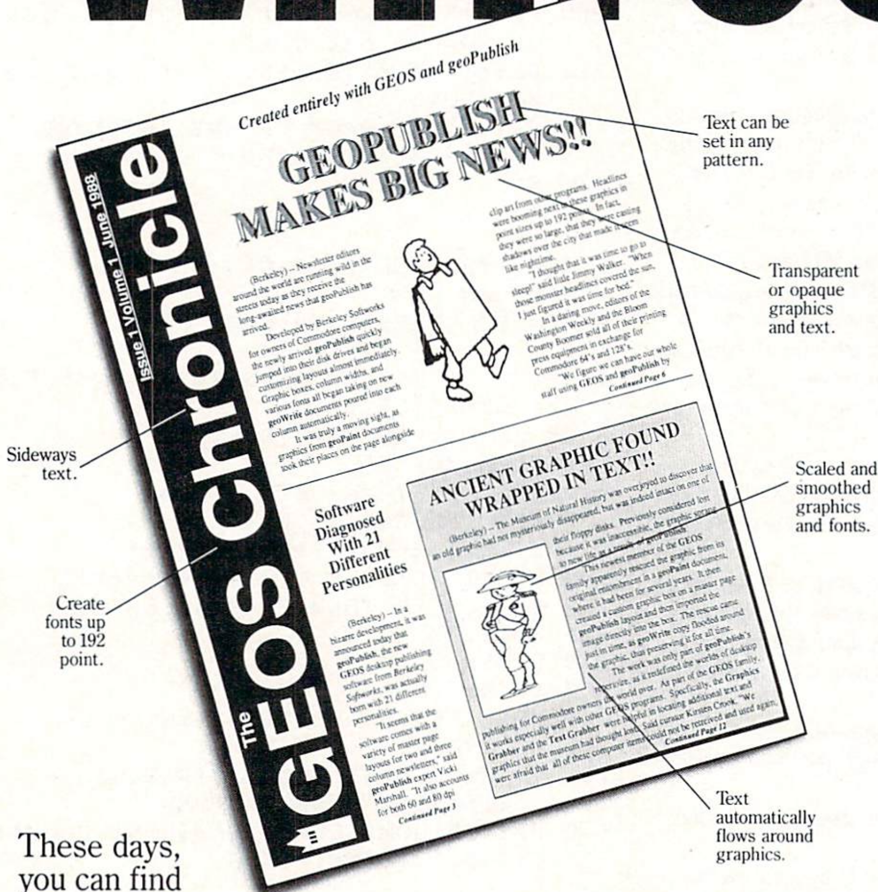
```
100 REM * AUTOLOADER FOR ML VERSIONS
110 REM * OF THE COMMODORE MAGAZINE
120 REM * MAGAZINE ENTRY PROGRAM
130 PRINT"[CLEAR,DOWN]WORKING..."
    :K$="KILL":P$="MAGENTPROG64.ML"
    :R=49152:REM 64
140 IF PEEK(65534)=23 THEN K$="SYS
    4867":P$="MAGENTPROG128.ML":R=4864
    :REM 128
150 IF A=0 THEN A=1:LOAD P$,8,1
160 PRINT"[CLEAR,DOWN]THE COMMODORE
    MAGAZINE MAGAZINE ENTRY"
170 PRINT"PROGRAM IS NOW ACTIVE."
180 PRINT"[DOWN]ENTER '";K$;
    "' TO DISABLE IT."
190 PRINT"[DOWN]ENTER 'SYS";R"[LEFT]
    ' TO REACTIVATE IT."
200 PRINT"[DOWN]COMPLETE INFORMATION
    ON HOW TO USE THE"
210 PRINT"MAGAZINE ENTRY PROGRAM CAN
    BE FOUND IN"
220 PRINT"THE BACK OF ANY ISSUE OF
    THE MAGAZINE.[DOWN]"
230 SYS R : NEW
```

```
1 REM IMPROVED 64 MAGAZINE ENTRY
  PROGRAM
2 REM SEE TIPS & TRICKS, 8/88
3 :
4 INPUT"SAVE A ML VERSION (Y OR N)";Z$
  :Z$=LEFT$(Z$,1)
5 IF Z$="Y" OR Z$="[SHFT Y]
  " THEN Z$="Y"
6 IF Z$="Y" THEN OPEN 1,8,8,
  "MAGENTPROG64.ML,P,W"
  :PRINT#1,CHR$(0)+CHR$(192);
100 B=H*16+L:POKE P,B:T=T+B:P=P+1
102 IF Z$="Y" THEN PRINT#1,CHR$(B);
104 GOTO 30
115 CLOSE 1
120 PRINT"[CLEAR,DOWN13]
    DONE! PRESS <RETURN> TWICE TO
    ACTIVATE.
130 PRINT"[DOWN]'KILL' DISABLES,
     'SYS49152' REACTIVATES."
140 PRINT"[HOME,DOWN3]NEW[HOME,DOWN6]
    SYS49152[HOME]":END
```

```
1 REM IMPROVED 128 MAGAZINE ENTRY PROG
2 REM SEE TIPS & TRICKS, 8/88
3 :
4 INPUT"SAVE A ML VERSION (Y OR N)";Z$
  :Z$=LEFT$(Z$,1):IF Z$="[SHFT Y]
  " THEN Z$="Y"
115 IF Z$="Y" THEN BSAVE"MAGENTPROG12
    8.ML",B0,P4864 TO P5546
120 PRINT"[CLEAR]MAGAZINE ENTRY
    : SYS4864=ON[SPACE2]SYS4867=OFF"
125 W=39:IF RWINDOW(2)=80 THEN W=79
130 WINDOW 0,1,W,24
135 PRINT"[DOWN10]DONE! PRESS
    <RETURN> TWICE TO ACTIVATE.
140 PRINT"[HOME,DOWN3]NEW[HOME,DOWN6]
    SYS4864[HOME]":END
```

Continued on page 96

WE SCOOPE
WITH OUR FE



These days, you can find all kinds of programs that call themselves desktop publishers. Oh, one may drop a drawing here or create a column there. But don't let anyone kid you.

Nobody's got anything like geoPublish.

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—MicroTimes, March, 1988

With geoPublish, you pour your geoWrite text into columns and around graphics. Automatically. You can use any of the 21 preset page layouts or any of the zillions you come up with yourself.

After that, it's off to fun city.

The geoPublish toolbox is filled with goodies that help you create all kinds of special effects in almost every area. for example, you can customize over 80 GEOS compatible fonts. In bold, italic, underline, or outline. In any combination you choose. Up to 192 points high.

"Of the three software packages I used (geoPublish, Personal Newsletter, Outrageous Pages), geoPublish most resembles professional desktop publishing programs."

—RUN, March 1988

And that's just what you can do with type. You can also create columns. Boxes. Banners. Enlarge or reduce graphics. Zoom in for detail work. Preview the entire page. And print the whole thing out on a LaserPrinter for a razor sharp look.

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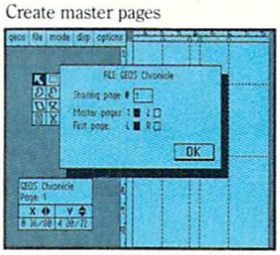
Work in full page preview mode

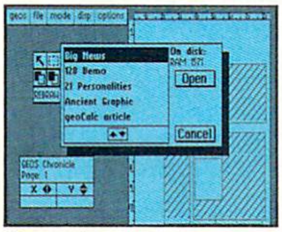


Zoom into actual size

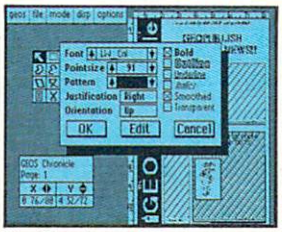


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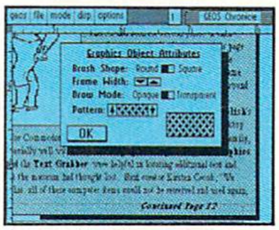




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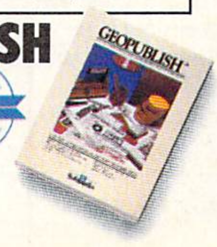
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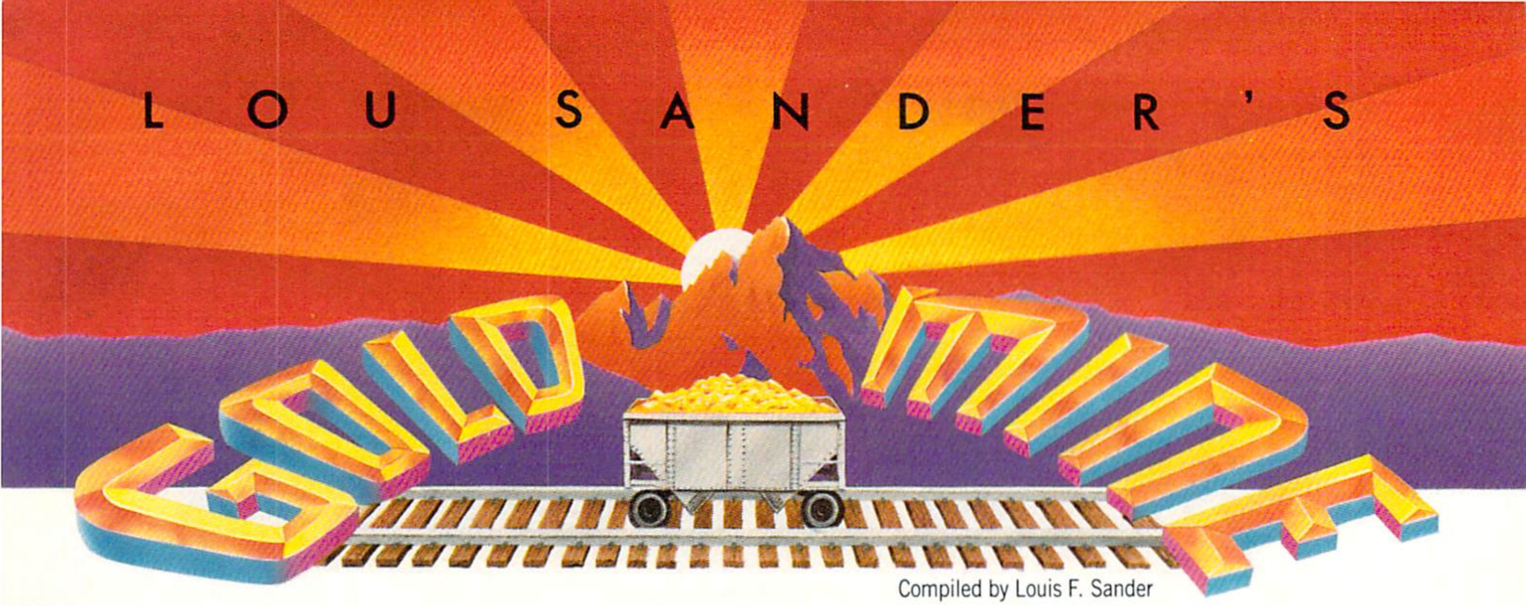
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Compiled by Louis F. Sander

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Alternate Reality: If you know how to use a disk sector editor, you can easily change your character stats. Each disk can hold four characters, on tracks 5, 9, 13 and 17.

In sector 14, the locations are:

167-169 — Experience in hi byte/lo byte format
173 — Character level
184-185 — Hit points in hi byte/lo byte format
188-189 — Maximum hit points
190-193 — Amount of gold
194-197 — Amount of silver
198-201 — Amount of copper
202-205 — Amount of gems
206-209 — Amount of jewels

These are the locations in sector 15. Choose a number between 0 and 255 and put it three times in a row in the places indicated:

46-48 — Strength
55-57 — Intelligence
64-66 — Wisdom
73-75 — Skill
82-84 — Stamina
91-93 — Charisma
100-102 — Speed

Robert Sax
Wilson, NY

The Bard's Tale II: When fighting sorcerers, avoid attacking, giving the defend command to all your characters. The sorcerers will usually summon up a ninja, and at the end of the round the party will disbelieve them. Repeat this several times, and your experience points will really mount up.

Tired of waiting for morning? Go in and out of the Adventurer's Guild.

Trenton Gold
El Paso, TX

The Bard's Tale II: Before defeating Lagoth Zanta, make a new character and bring him to the Sage's Hut. Defeat Lagoth Zanta and the King will award all new characters a million experience points, which will bring them up to the 21st level.

Erik Yerasseur
Uxbridge, MA

The Bard's Tale II: To enter the Catacombs from the Mad God Temple, say TARJAN to the priest.

To get the first piece of the wand, go to the TOMBS and make sure you have space for an extra person to join your party. Then:

1. When you get in the first snare, fight the toxic giant.
2. Let the old warrior join your party, putting him first in the lineup.
3. Give the warrior what you got from the giant.
4. Have everyone drink from the fountain.
5. Have the old warrior use what you got from the giant in front of the cloudy face.

If you have followed these instructions carefully, you'll find a door where you found the old warrior. It leads to the first piece of the wand. To get the second piece, after entering the second snare go through the door on the left.

Tim Simstad
Address Unknown

The Bard's Tale II: To get past the double doors in the beginner dungeon, make your bard sing the Watchwood Melody.

When going to fight Lagoth Zanta (the Sage), fill the empty slots in your characters with dynamite or holy hand grenades. Then have every character, except for your Archmage(s) and those with an Aram's knife, toss dynamite or holy hand grenades every round. Make the Archmage(s) cast either the dream spell or heal all, to heal/raise every member who has taken any damage. Toss Aram's knives at Lagoth Zanta until he is dead.

Stephen E. Mynhier
Lake City, FL

Bomb Jack: For infinite lives, load the game, reset your 64, then type:

POKE 4056,44 <RETURN>
SYS 2064 <RETURN>

Patrick Thibault
St-Nicolas, Quebec
Canada

Bomb Jack: Here's another way to do it:
POKE 5693,234 <RETURN>
POKE 5694,234 <RETURN>
POKE 5695,234 <RETURN>
SYS 2066 <RETURN>
Adrian Zenker
Buenos Aires, Argentina

Bruce Lee: To get super high scores in this game, go to the right-most part of the screen on ground level. After appearing on the left side of the screen, go to the ladder in the middle. When the Ninja appears, he will come down and stop beside the ladder. Come down and he will charge you. When the Ninja touches the ladder, climb up it again. Align yourself with the Ninja and come down on his head. Repeat as often as necessary.
Ta-Wei Wan
Bangkok, Thailand

California Games: To rack up points in Surfing, instead of ramping in the regular way, push your button and push your joystick left. You will be able to do a 360 in the air.
Justin Stephenson
Evansville, IN

Cauldron II: For infinite lives, POKE 26282,165.
Patrick Thibault
St-Nicolas, Quebec
Canada

Championship Wrestling: When playing a one-player game, wait until your score is 750 points before covering the computer opponent. If your score is above 900, wait until time runs out, or you will lose up to six points.
Evan Davis
Edgeworth, New South Wales
Australia

Championship Wrestling: The world record is located on Track 18, Sector 10. If you're skilled with a disk editor, change it to anything you'd like.
David Stewart
Hazel Green, AL

Defender of the Crown: When you are raiding, strike the soldier while moving backwards. It will be hard for him to strike you.
Nathan Jones
Baltimore, MD

Defender of the Crown: When you first start the game, transfer all your garrison to your army, then move to a territory that has the most vassals. This will put extra men into your army. Do this for two or three moves to build your income and your army, but don't spend too much time away from your castle with no men there.

When jousting in a tournament, move the lance left until it is just left of the right-hand side of your opponent's shield, then go down a little. While doing this, count the number of times your lance bounces. On the fifth bounce, at the lowest point possible, press the button to knock your opponent off his horse. This takes a little practice, but it's worth it.

When jousting against a better opponent, try to knock him from his horse the first time. If you miss, he is likely to knock you off that time or the next. When jousting an inferior opponent, you'll probably have another chance.
Glenn Taylor
Algonac, MI

Dig Dug: If you observe the lower right cave, you should see Pooka, the tomato with sunglasses. Watch where he starts moving, and go down to his cave and pop him from above. Pump him at the place he started from, and when he is one pump from popping, press RESTORE and immediately start another game. Sometimes this works and gives you 500 points and one less creature.
Shane Watts
Birmingham, AL

Fort Apocalypse: For 98 lives, load the game but don't run it. Then type:
POKE 36339,153 <RETURN>
RUN <RETURN>
Patrick Thibault
St-Nicolas, Quebec
Canada

G.I. Joe: If you are G.I. Joe and one of your troopers is behind bars, position your star next to him (or her). Quickly move the joystick towards him, pressing the joystick at the same time. The words G.I. JOE will fall on the captured character, and you can use him once again.

In heavy equipment combat, if you have only one person to control both joysticks, find the hiss tanks and position your vehicle out of range of missiles. Then pick up the other joystick and begin firing.
Mark Bickle
Oregon, OH

Gunship: Use a copy machine to duplicate the overlay supplied with the game. Outline frequently-used keys with a bright colored marker, making them much easier to find.

If you crash or are found MIA, proceed until asked to flip the disk and press the fire button. Instead, flip and reboot the disk. You'll find your pilot still alive, and you'll be able to collect a chest full of ribbons and medals, not to mention points.
Joseph T. O'Connell
Sewell, NJ

Gunship: Use accelerated time while traveling to your primary and secondary missions as well as when returning.

Write down the countersign and keep it close by, since you have a limited time to type it in. Also write down the map grid numbers to both primary and secondary missions.

When you're getting shot down drastically and you need to look at your position, press Z and put the game in pause mode.
Mark Bickle
Oregon, OH

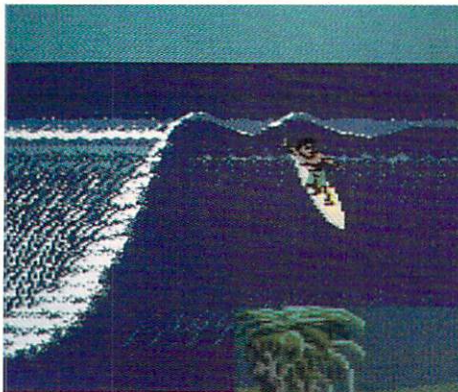
Hacker II: To see the ending screen, type COVER, then enter your name when prompted. This tip also works for the Amiga version.
Steve Rohatynsky
Winnipeg, Manitoba
Canada

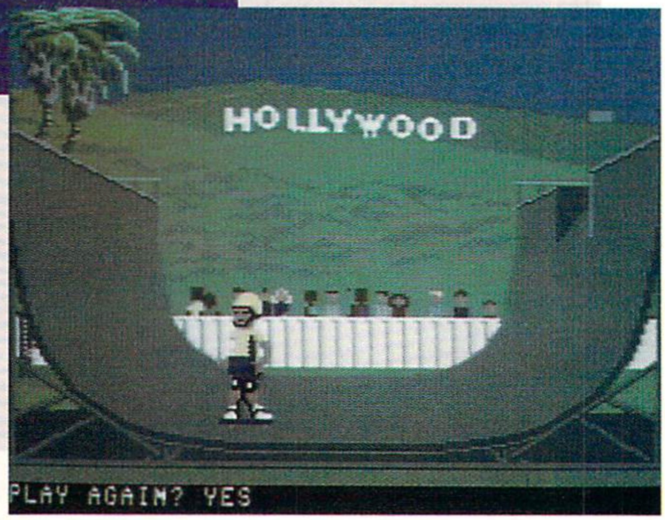
Continued on page 98

Reviewed by John Jermaine

California Games

Computer: Commodore 64
Publisher: Epyx
600 Galveston Dr.
Redwood City, CA 94063
Medium: Disk
Price: $39.95





Long ago, in the legendary kingdom of California, a group of young wizards gathered together to have a little fun. These talented individuals wanted to compete against each other, so they devised a series of unusual challenges which took advantage of the realm's fantastic weather and beautiful beaches. These events included: halfpipe skateboarding, performing tricks with a foot bag, surfing, roller skating, BMX™ bike racing, and throwing a flying disk. Over the years, new generations of California wizards have kept the spirit of these sports alive in places like Venice Beach, Santa Cruz and Golden Gate Park.

Matt Householder, a program manager at Epyx, also became fascinated with these addictive west coast pastimes. He and his wife Candi thought software customers around the world would jump at the chance to participate in traditional California contests. The rest is history.

To start things off, lets examine the six mini-games of the program. Halfpipe Skateboarding is a unique challenge for several different reasons. First of all, the player has to learn the secrets of riding a skateboard in a U-shaped trough. This is no easy matter, because your speed and timing must be exact. Once you've mastered the basics, extra points can be earned by performing kick turns, hand plants and aerial turns. I recently spoke to a guy who had done a lot of halfpipe skateboarding several years ago. He says the Epyx simulation of the sport is authentic and accurately depicts the unique factors of his favorite hobby.

California Games' Foot Bag event resembles Hacky Sack™ competition. Even though Foot Bag is one of the easiest events of the program, it's really a challenge to literally juggle the bag (in the air above you) without using your hands. Some points are scored by keeping the foot bag moving, where it doesn't touch the ground, but a wise player will perform as many stunts as possible during the allotted time. By using this approach, the user will obtain a much higher score.

> Once you know what has to be done, concentrate your effort on learning the optional stunts of each game.

Roller Skating dares you to travel down a typical California boardwalk without taking any spills. The skater has to avoid a number of familiar obstacles (including discarded banana peels, bouncing beach balls, dropped ice cream cones, etc.), while leaping over cracks and missing pieces of the walkway.

BMX Bicycle Racing (BMX stands for Bicycle Motocross) is the ultimate test of a consumer's joystick skills. Ride your bike over a rugged course containing a generous supply of bumps, dips, jumps, and a few obstacles thrown in for good measure. Points are awarded for completing the course within the two-minute time limit. A smart cyclist, however, will try to perform several stunts along the way for additional points.

Surfing actually transports you to the beaches of southern California. Grab a board, hit the waves and shoot the tube like the pros do. You have one and a half minutes or four wipeouts (which ever comes first) to show the judges your stuff.

Last, but not least, we have the Flying Disk contest. If you like throwing a Frisbee™ around the back yard, Flying Disk should be right up your alley. The object of this event is quite simple: throw the disk properly, estimate how far it will travel, and catch the disk before it falls to the ground. Some individuals might think this is a boring concept for a home computer game, but I've had a lot of fun trying to do everything correctly.

The graphics of *California Games* are superb. One of the first things I noticed about the program was its interesting collection of computer athletes. In Foot Bag, for example, the an attractive man exhibits extremely fluid body movements. Computer people in other games (like those in Roller Skating and Flying Disk) give you partial control of their bodies. The skater allows the player to move her legs or jump, while the two flying disk enthusiasts are either throwing the disk or moving in a direction to catch it. BMX Bike Racing, Surfing and Halfpipe Skateboarding feature unusual software athletes. In this case the consumer is actually mani-

pulating the vehicles, instead of the people riding them.

Background graphics are equally important. Foot Bag competition takes place in Golden Gate Park, making it possible for the user to see Alcatraz, San Francisco Bay and the Golden Gate Bridge in the distance. In Roller Skating, the player can observe activities taking place on the beach behind his skater. Where most computer games simply place you in a generic environment, *California Games* actually transports the player to places he's read about and gives him the opportunity to experience what it's like to be there.

All six events in *California Games* were well planned and thoroughly researched.

If you expect superior sound effects in your software, *California Games* won't disappoint you. First of all, inspirational music is played at the beginning of every contest. Some of these energetic tunes seem vaguely familiar, but the only one I could identify was "Louie, Louie" (heard during the opening title sequence). The different sounds of the sea in the program are absolutely incredible. As you participate in Surfing, for example, the ocean literally roars around you. During Foot Bag competition, the player is a short distance away from the water, and the sound of the sea is much softer. These last two items are the most realistic home computer game sound effects I've heard to date. Other interesting noises include: the low rumble of an earthquake, the screech of sea gulls flying over head, and the high-pitched language of dolphins.

Game play is another issue we need to discuss. All six events in *California Games* were well planned and thoroughly researched. As far as I can tell, each is a true simulation of the sport represented. These challenges were also designed to be extremely user friendly. Epyx game designers have taken a complicated real-life situation and simplified things, so the average consumer can perform the same task on a microcomputer.

Read as much about each contest as you can before actually "booting up" the title. Yes, this means opening the instruction manual. Once you know what has to be done, concentrate on learning the optional stunts of the game. Performing these tricks in competition will earn you a lot of additional points. A time factor is also present in most events, so try to perform a number of different stunts, progressing from the easiest to the hardest ones on the list. This strategy guarantees you a decent score, with the possibility of earning an excellent one.

In conclusion, *California Games* is a remarkable piece of software. The graphics of the program are excellent. Computer athletes, in all six game challenges, look and act like real human beings. If you ride your bike over the BMX race course, expect to encounter the types of things real BMX bikers have to contend with. In other words, authenticity is the prime directive. Every component of the program has been carefully patterned after its counterpart in the real world, and the motion of these items appears to be natural. Sound effects are equally impressive. They successfully support the action on the screen. The joystick commands are easy to use, while the instruction manual was written in common language.

I really enjoyed the program because it's like radical and totally tubular, dudes. For an instant translation of this last remark, read the final page of the *California Games* instruction manual. ■

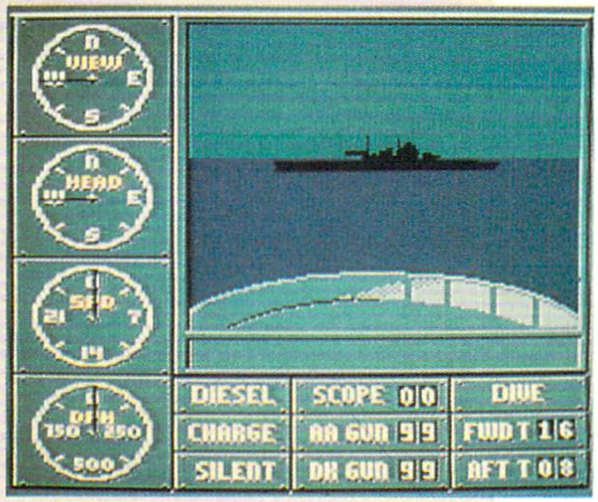


Reviewed by Gary V. Fields

Sub Battle Simulator

Computer: Commodore 64
Publisher: Epyx
600 Galveston Dr.
Redwood City, CA 94063
Medium: Disk
Price: $39.95

To survive you must be able to mix caution, courage, skill and luck.



Sub Battle Simulator is the latest entry in the World War II submarine simulation field. This game lets you command either an American or German submarine during the war years of 1939 through 1945. As skipper, you can take your sub out for training maneuvers, a single battle or multiple missions covering the duration of the war, plus you can operate in either the Pacific or Atlantic Ocean.

As if those options weren't enough, the game lets you select which type of submarine you command as well. As a German officer, you can select either an outdated German IID U-boat (for a real challenge), the more common VIIC, or even the streamlined XXI (to put the odds on your side). If you prefer to operate an American sub, you must choose between Gato/Tench class or an older S-Boat. These choices not only prevent missions from becoming redundant, but also make the simulations much more realistic. The game includes four levels of difficulty, but these artificial levels are expanded by choosing the type submarine you command.

I must admit I approached *Sub Battle* with some skepticism. One of the first war games I ever bought for my 64 was a sub simulator, and I've tried to test each new entry into the field. Too often I've found these games were either too arcade-like or else too complicated. The only one I really liked that properly mixed action and strategy was *Silent Service* (MicroProse). The question for me came down to one consideration: how well does *Sub Battle* hold up against my favorite? And to answer the question immediately, I found this one every bit as good in most categories and better in some.

First, let me tell you the few things I didn't like. This game relies heavily upon keyboard controls, which means you will have to spend some time mastering your sub's layout before you can hope to survive in open water. Because the game spans the conflict areas of both the Atlantic and Pacific oceans and includes views from radar, sonar, maps, periscope, binoculars and the tower (plus zoomed views of some), the entire game cannot be loaded into the 64's memory at one spin. So when you change views or significant events occur, the disk is accessed to display the new screen or information. These access delays are not annoyingly long, but they can spoil the illusion of real-time play.

With that said, let me add I was delighted with everything else about *Sub Battle*. The game's graphics are well done, the maps are accurate, and the sound effects are effective. Not only can you view most of the actual gauges, devices and scenes you would from a real sub, but you can also view your submarine (when submerged) from a vantage point outside the sub (fish-eye view). This perspective lets you see any surface vessels approaching and dropping depth charges. I'm sure some perfectionists will object to this unreal vantage point, but I appreciate the option. I found the ability to see the action during a depth charge attack increased my interest. If you demand realism and nothing more, simply never use this option.

I really like the ability to do battle in either ocean and the ability to stay at sea for the duration rather than for only a few sorties. Here, as in real war, you must return to home port to refurbish your supplies. To survive you must be able to mix caution, courage, skill and luck. The game even includes air attacks which you must either avoid or defend against with your anti-aircraft gun. And true to life, you must recharge your batteries for submerged action. There is also an option to save your place in the game, so a mission can go on as long (or as short) as you wish (or survive). The map displays as well as all the other graphics of this game are realistic though not the best I've seen on the 64. Apparently the programmer sacrificed some graphics in order to accommodate more realism and speed.

The only thing a real enthusiast might complain about is that the game is a little too easy at the entry level. At that level, it is very difficult to miss hitting at least one ship when firing at a convoy. But as you increase the difficulty level, the game gets tougher and truer to real warfare. I personally appreciated the easy entry level. Too often games are so difficult that anyone less than an expert in the field in which the simulation is molded becomes frustrated. This is not true of *Sub Battle*. You will almost certainly have fun and tear up some convoys on your very first tour of duty. As you feel more confident you can increase your difficulty level, challenge and game reality.

There was a time when movies were guaranteed success at the box office as soon as they were banned in Boston. Instead of deterring people from using a product, banning it usually peaks the public's interest. Some software is now getting the same treatment. The recent efforts in West Germany to ban the sale of some war-related software to minors in that country has peaked interest in those games just like Boston peaked public interest in the movies the city tried to ban. At this writing, *Sub Battle* hasn't received the notoriety of such attention. But my advice is, don't overlook this game just because the Bonn government has not noticed it yet. *Sub Battle* is an excellent naval war simulation and deserves to be ranked with the 64's best. ■



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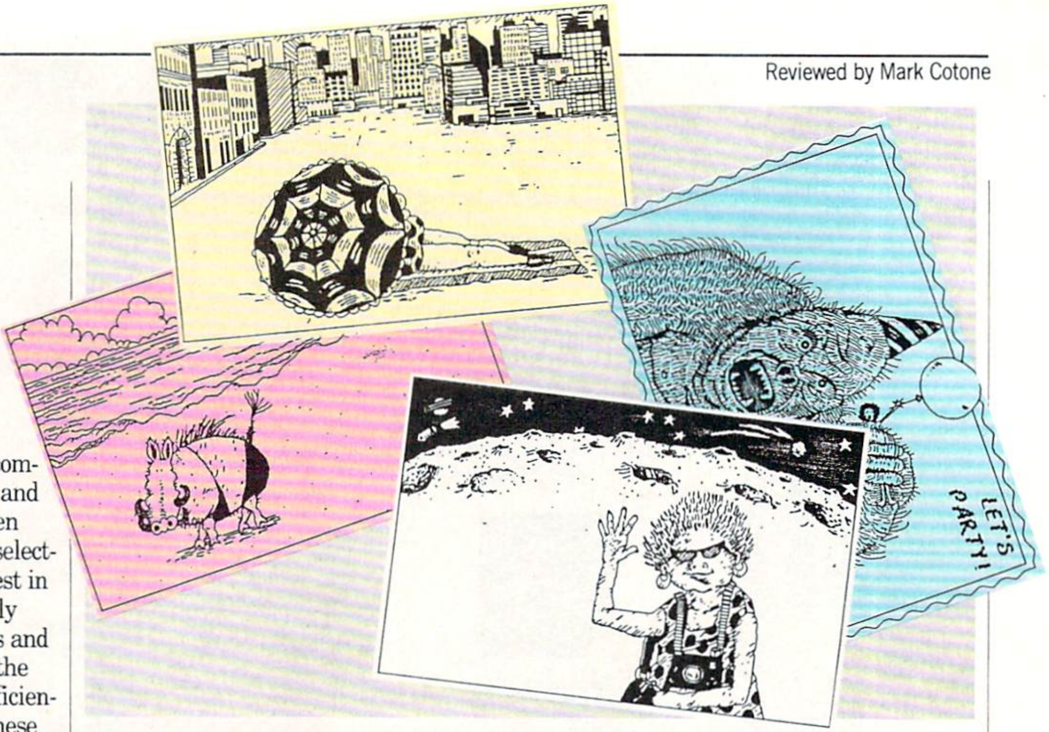
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Reviewed by Mark Cotone

Postcards

Computer: Commodore 64
Publisher: Activision
3885 Bohannon Dr.
Menlo Park, CA 94025
Medium: Disk
Price: $24.95



The postcard: is there any other communications medium as simple and effective? With a couple of well-chosen words scribbled on the flip side of a selected photo or illustration, one can invest in a fifteen-cent stamp and expeditiously make contact, establish whereabouts and express well wishes anywhere from the Atlantic to the Pacific. Talk about efficiency! The only notable problem with these pocket-sized wonders is that their common use is usually pretty restricted; they are generally reserved for messages penned at a hotel, resort, tourist attraction or other travelers' rest stop. Once the trip is over and the suitcases are unpacked, those who even take the trouble to keep in touch with the written word are forced to the card shop or stationery store—options which are apt to take more time, energy and cash.

But I wouldn't let the inkwells dry out just yet, for an evolution is in the works. With the release of Activision's *Postcards*, the familiar postal mighty mite has taken a giant step forward, breaking the old location restraints and now making it possible for users to create and design an unlimited supply of personalized postcards from the comfort of their own homes. With this program's assistance, a blank piece of paper can be transformed into a unique, mailable masterpiece in a matter of minutes. It's all so incredibly easy, I guarantee your "outgoing" pile will never look the same.

The nucleus of the *Postcards* package is a special paint program, a two-step utility which first lets you sift through various visual libraries to pick up all of the elements you would like in your composition. It then provides you with a full-size work area, a white rectangular canvas of sorts, on which the ingredients can be placed and arranged. A vertical "commands" menu borders the left edge of this display, allowing easy access to all designing tools with a mere tap of the keyboard.

When gathering artwork for your postcard, you can either use the clip art from Activision's on-disk pool, or compose your own drawings from scratch. If you choose the former method, you'll find enough imaginative diversity on hand to satisfy almost any need. First, a ten-scene tour is provided to help you outfit your postcard with a desired background. Offerings include Main Street U.S.A., skylines, moonscapes, quiet country roads and everything in between. Once the backdrop is selected, you'll have a library of over 130 pre-drawn objects, animals, people, signs and structures to help dress things up.

Postcards employs the familiar and facile "cut and paste" construction technique to assist with the designing. As if you were working with a pair of scissors, you can leaf through the visual files, select and "clip" all the desired items, and then place and position them anywhere on the postcard in progress. Objects can be moved, mated, duplicated, flipped, or, if they don't meet expectations, simply discarded. With Activision's libraries, the slant is humorous and the scope is broad, ranging from the realistic (ice cream sundae) and historic (Napoleon), to the fantastic (flying saucer) and utterly absurd (bikini-clad wart hog). You're bound to find just what you need.

Once the scene is set and the cast is in place, it's time to polish off your postcard with a personalized message. Some of the old standbys, like "Good Luck," "Greetings From . . ." and "Congratulations" are included in a phrase file. But there are no limitations. You can say anything you'd like either by typing out a quip or two in the Text mode or by accessing some of the more elaborate letter styles available in the Alphabet library. Then, with the on-screen creation complete, you move to the final Output phase, where the postcard is printed onto a regular sheet of paper, pasted to the back of some thicker card stock (supplied in the package), and then trimmed to fit. Voila! Your completed postcard is ready to fly. A quick note, a stamp, and it's on its way.

We've all come to expect a complete professional job from Activision, and *Postcards* does not disappoint. The documentation is clear and comprehensive, filled with easy-to-follow lessons, explanations and examples. A sturdy reference card is also boxed, categorically listing all the contents of the visual files, making item location a snap. This thoroughness and ease of use also carries over to the program itself. Even the most absent-minded user will be steered clear of potential trouble with on-screen prompts and instructions. It's smooth, trouble-free sailing all the way.

Although this package's title would lead one to believe that its finished product is rather specialized, I've found additional uses for these petite creations, like personalized memos and eye-catching bulletin board reminders. Activision offers even more suggestions, like gift tags, invitations and bookmarks. It's such an easy-to-use, entertaining diversion, that you'll probably find yourself thinking up reasons to pick through the clip art to create a scene or two. I've got a whole disk full of completed postcards just waiting for an occasion.

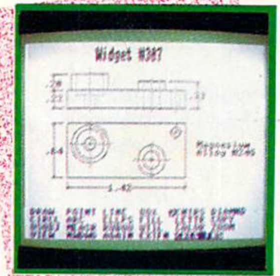
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Reviewed by Jim Esch

geoDex

Computer: Commodore 64
Publisher: Berkeley Softworks
2150 Shattuck Ave.
Berkeley, CA 94704
Medium: Disk
Price: *Deskpack Plus*—$29.95*

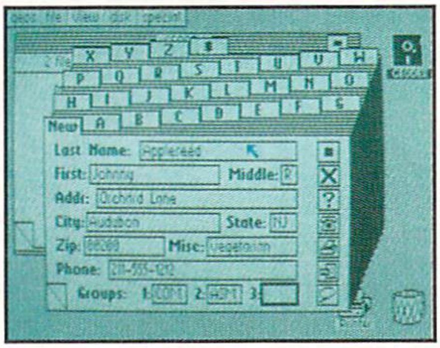
GeoDex turns your Commodore 64 or 128 into a convenient rolodex-style filing system for names and addresses. It has the look of an actual rolodex—it pops up in front of your desktop menu for easy access. Each area of related information looks like an index card with a column of icons on the right border. Cards are organized alphabetically according to the first letter of the last name, which is indicated on a letter tab at the top of the card. A card holds ten fields of information: last name, first name, middle initial, address, city, state, zip, miscellaneous, phone number, and group (more on this later).

Each field is accessed by pointing and clicking your mouse or joystick or pressing RETURN, which moves you to the next field. There are limitations to the number of characters that you can enter in a given field (e.g., 30 characters for an address), so you may have to tinker with abbreviations.

If you want to make a new entry, click on the New tab and type your information. When you are done with a card, click on New again, and a blank card will appear. The card you've just typed has been automatically filed in alphabetical order.

Moving between files is essentially the same as a rolodex; you can jump to a letter tab, then flip through cards using the page turn icons in the lower-left corner of each card. You can also use the up and down cursor keys for the same result.

To search through files for a particular name, click on the "Search" icon and type in the last name you want to find. When you enter a question mark in the name, *geoDex* will look for the name, allowing any character for the place you entered the question mark. For example, if you type J?nes instead of Jones, *geoDex* will look for Janes, Jenes, Jines, Jones, and Junes. You can also type an asterisk (*) at the end of a list of characters; *geoDex* will search for only the letters before the asterisk and disregard the rest. You can type Jo* as your name, and *geoDex* will look for any name beginning with "Jo." You can-



To autodial just page to a card, pick up your phone (connected to a modem) and click on the telephone icon.

not, however, begin a name with a question mark or asterisk.

Group Fields

To organize your cards other than alphabetically use group fields (three per card). These fields let you enter a three-initial code for different groups. For example, your card file may contain many different types of names and addresses: friends, club members, clients, etc. By designating each card into these categories, you'll be able to access each group.

If you want to view a selected group within your total card file, click on the Group icon and type in the group initials. Only records that match the group designation will be displayed. This saves you needless flipping through irrelevant cards.

GeoDex can also print your records in different ways. You can print a phone list of all the names in your list or selected group, or you can print address labels (one inch and inch and a half sizes). You can even print a list of all the field data on each card. Select the Group icon to print a select portion of your files.

Autodialing is another nice feature on this application. With it you can page to a card, pick up your phone (connected to a modem) and click on the telephone icon. The modem will dial the number listed on the card.

GeoDex also supports many commands via the keyboard: autodial, delete current record, search for a record, create a merge file, select a group, print records, quit *geoDex,* change style (plain/boldface), display first record of a given letter file. You can read data from *geoDex*, *geoFile*, or *geoWrite.* The manual details the process for using *geoDex* to merge data.

Tips

Remember that *geoDex* is limited to 24 cards per letter of the alphabet, so you might need to keep more than one file drawer if you think you'll exceed this limit. Use this limitation to your advantage by making separate drawers for separate purposes.

GeoDex is useful as a reference tool, and it's a quick way to print out labels and lists in dot matrix format. But it doesn't have the open ended capability or adaptability of a database like *geoFile.* For instance, you are limited to the fields given on the card, which have character limitations. Thus, you don't have as much flexibility in tailoring your addresses to include lengthy or multiple information.

The more complicated your entries, the more you'll need a database like *geoFile.* The fact that *geoDex* is a dedicated address card file makes it advantageous over a more powerful database in some respects. You don't have to worry about creating anything—you're automatically provided with name, address and telephone number fields. The program also lacks the flexibility of print styles that you have in other GEOS applications. *GeoDex* prints either plain or boldface styles, but you can't use fonts like Roma or BSW. You can use fonts by merging a *geoDex* data file into a *geoWrite* document. So you can include your names and addresses in a form letter, taking advantage of the fonts and styles in *geoWrite.*

GeoDex can be very useful if you store it onto other workdisks with applications like *geoWrite* and *geoFile.* This way, an entire card file of names and addresses will be at your disposal while writing or organizing larger fields of data. With *geoMerge* you'll be able to merge this information efficiently. Think of the time saved—no more alphabetizing or flipping through cards manually. *GeoDex* adds further efficiency to your Commodore operating environment by simplifying the tedium involved with the traditional rolodex. You'll even clear some desktop space.

* ***Editor's Note:*** *Berkeley now bundles* geoDex *with* geoMerge, Graphics Grabber, Icon Editor, The Calendar *and* Blackjack. *The package is titled* Deskpack Plus *and retails for $29.95.*


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Reviewed by Russ Ceccola

The Eternal Dagger

Computer: Commodore 64
Publisher: Strategic Simulations, Inc.
1046 N. Rengstorff Ave.
Mountain View, CA
94043-9986
Medium: Disk
Price: $39.95

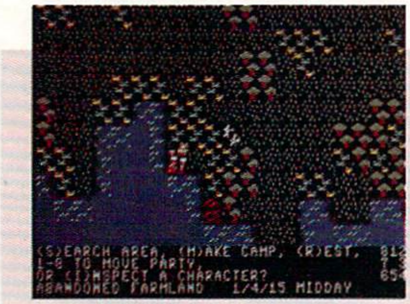
A recent release from SSI is *The Eternal Dagger*, sequel to the popular *Wizard's Crown. The Eternal Dagger* captures all of the essential elements of role-playing games that make them so enjoyable and places them in a new "world" that is explored via an updated *Wizard's Crown* game system.

This game system that made *Wizard's Crown* such a winner promises success for *The Eternal Dagger*. What sets the system apart from other role-playing games is the use of two forms of combat (tactical and quick) and the highly structured and organized use of classifications for items, abilities, monsters, spells, weapons and characters. Also unique to this system are its incredible ease of use and command entry that relies entirely on single key presses.

Every encounter with enemies in *The Eternal Dagger* requires a choice of combat modes. If quick combat mode is selected, the computer resolves all combat in five to ten seconds. This mode should be used only when weaker creatures are encountered. It doesn't allow control of any special combat items or weapons with which defeat of the enemy may be simpler. The computer simply chooses the best strategy for your party and conducts the battle based on this strategy. Whether you win or not is out of your hands.

I don't like trusting a computer with my free time, so I prefer tactical combat. Tactical combat brings war gaming into role-playing games, in that you make every battle command and see a layout of all characters and monsters involved in the battle on the screen—just like a war game. Complete control of all items and characters, as well as necessary examination of all opponents, make this the mode of choice for all but the easiest battles.

Many battles will be fought in *The Eternal Dagger*, for the plot revolves around reducing the number of creatures over-



running one world and closing the gate that leads to another world teeming with more horrible monsters. *The Eternal Dagger* takes place some time after the goal of *Wizard's Crown* has been completed. Kaitar, a friendly wizard, has discovered that many demons and undead creatures are attacking innocent people in Arghan, the place saved in *Wizard's Crown*. They are coming from a parallel world, Middle World. Ssur, a wizard in Middle World, informs you that you must now save Middle World from these monsters. Your party is transported to Middle World through a dimension gate, in which you lose all weapons and inanimate items, for only living beings (and undead creatures) may pass through the gate.

Saving Middle World from the demons, undead and other monsters offers an even greater challenge than that of *Wizard's Crown*. You realize that the source of all these vile creatures is the Demon World, the gate to which lies at the bottom of a deep ocean. The Demon World must be entered and closed forever. The only thing that allows entrance is a living weapon, called the Eternal Dagger. You must create this weapon and use it to close the Demon World's gate.

Sounds simple enough, but *The Eternal Dagger* is a very challenging game that will take a long time to complete, yet it's worth every minute of play. The many subplots make you forget the ultimate task set before you. There are three main islands you must explore to finish *The Eternal Dagger*. Each offers its own challenge. The first island, on which you start the game, is Ssur's home. You have to defeat a dragon (getting a special sword from the north part of the island first) and the Necromancer, who has changed all the good people of Middle World into undead creatures. Travel to the second island, Elven Isle, and the third island, Dwarven Island, requires you to save a princess, the only person capable of creating the Eternal Dagger. The last phase of the game involves creating the special weapon and entering the Demon World through the ocean. Unfortunately, you lose all weapons and items once again, because travel through the dimension gate is only for living things. All of these goals will keep the most avid adventurer occupied for a long time.

Before you perform any of the above feats, you must create the characters that will journey through Middle World. You have three options. First, you can use characters from *Wizard's Crown*. Do this only if your party has finished *Wizard's Crown*. Second, you can use the eight characters included with the game to form a party. If you want to play *The Eternal Dagger* with these characters, closely examine each one before starting the game. Finally, you may create each character in your party. I recommend going through this process, since only then will the game have a personal touch. Generation of each character gives you an extra bit of control over the game and better knowledge of the party.

Creating an adventurer and assigning that character to a party is a simple, yet important, process explained very clearly in the manual. You'll find yourself using the manual as a reference while playing because of its explicit instructions and descriptions as well as the many tables used in the game. Creating a character involves assigning points to four attributes (intelligence, strength, dexterity and life), choosing a profession, selecting weapons and armor and assigning points to the various skills and abilities available to your profession. Multiple professions are possible and recommended, for they add skills to your character. Character creation is very important; the game relies heavily on attributes and skills.

The Eternal Dagger is entirely menu-driven, and all commands are entered by pressing a key that means something in a certain menu or on a certain screen. This method of game play forces you to concentrate on what to do in the world on your screen. Menus that you will use the most are the dungeon menu, the tactical combat menu, the character inspection menus and the camp menu. If you're not sure what a command does, press the question mark to get a description of the command's purpose for that menu. This feature also enables easier play.

The Eternal Dagger can be played in many ways, however, I have found one method that seems to work very well. Up-

Continued on page 67



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Reviewed by Scott A. May

Superstar Soccer

Computer: Commodore 64
Publisher: Mindscape, Inc.
3444 Dundee Rd.
Northbrook, IL 60062
Medium: Disk
Price: $34.95

First things first—soccer was never my favorite sport. Little guys with thunder thighs chasing a checkered ball up and down a field. Give me a break. Mindscape's *Superstar Soccer* has changed all that. From the subtle strategies of a head coach to the physical finesse of an overhead kick, this game has literally opened my eyes to a whole new ballgame.

Superstar Soccer was designed by Gamestar veteran Ed Ringler, author of Mindscape's *Superstar Hockey* and *Indoor Sports*. Ringler's attention to detail has created one of the most comprehensive sports games for the Commodore 64.

Players assume the role of the owner, general manager, head coach and star players. Nurture your expansion team through each season and watch them grow with experience. As coach, learn to spot both raw talent and bad apples among your players. Enter the bargaining tables and make valuable player trades.



Then hit the field and put your muscle where your mouth is.

New players begin the SportTime Soccer League with a rookie expansion team. The league contains 64 teams in four 16-team divisions. Brand-new teams start dead last in division four—a long climb to the top. Players can choose a seven or 15-game season. Finally, choose to play either in the U.S. or British league. Together, both leagues account for 128 individual teams containing a minimum of 320 unique players. The game's player database alone boggles the mind.

The main menu offers a wide assortment of team information and options. View the League Status for general information or Team History for specific statistics for any team in the League. Stats include win-draw-loss records, goals for and against, division number and standing, and overall ranking in the League.

Only the top two teams at the end of each season advance to a higher division. Consequently, the bottom two teams are pushed back to a lower division. There is often a two- or three-way tie for the top spots, especially in higher divisions. In this case, teams with the most impressive scoring records earn higher rankings.

The menu also follows each team's standing in the SportTime Cup playoffs. The playoffs consist of single-elimination contests played between regular season games. One loss and you're out of the playoffs. A playoff tree keeps track of the games in progress. Novice players shouldn't have to worry about playoffs for several seasons—playoff games are incredibly tough. Pitting a Division 1 computer team against your band of 90-pound weaklings isn't much of a contest.

At the heart of your team are the players. Each responds as an individual with almost lifelike characteristics, strengths and weaknesses. Teams consist of six positions: Center Forward, Goalie and four Wingbacks (offense and defense). Players range in age from 17 to 36. Although younger players show more energy (quickness) on the field, they are not always as talented as veterans. On the other hand, old pros tend to tire and injure easily, a common problem in this violent sport.

Player skill points range from 0–99 and affect their speed, agility and intelligence (in the case of computer-controlled players). As general manager, you can improve your team and its players in a number of ways. Visit the recruitment menu and sign on a 17-year-old rookie. Enter the bargaining tables and trade players

Making the Most of Your New Franchise

1. **Beware of the sheep in wolf's clothing.** Wheeling and dealing in the Player Trade can nab you a crackerjack player. It can also saddle you with a turkey. Check the player stats carefully—especially the injury record—before handing over valuable trading points. Remember that this is how other teams clean house. Don't get stuck with someone else's dirty laundry.

2. **Hold a family reunion.** Try to balance your team with both young punks and seasoned veterans. Recognize the difference between eagerness and ability, then capitalize on both with strategic substitutions. Keep a healthy roster of backups for each position—in particular, goalie and center forward.

3. **Go great gonzos!** Scare your opposition to death with unbridled enthusiasm. Intimidate their goalie. Strike hard, fast and never let up. Go for a record number of goals each game. Success or failure—especially in the higher divisions—depends not only on winning games, but also on scoring *big* points.

4. **The foot is quicker than the eye.** The biggest trick in scoring goals is to simultaneously watch the kick indicator, your position and the goalie's movements. Short of installing a third eye, concentrate on the goalie and use your peripheral vision to time your shot.

5. **Don't look now . . . Gotcha!** Practice the art of confusing a goalie. Approach the goal off-center, feint to the near sideline just enough to draw his commitment. Reverse direction and nail the ball to the far corner of the net. Learn to run one way and shoot in the opposite direction. Goalies often mistake goal-line passes for shots, causing them to dive for thin air.

6. **One is a lonely number.** Don't forget that your teammates like to play too. Chances are they are just as good, or *better*, than you. Forget your ego and learn creative passing attacks.

7. **Take THAT!** Bicycle kicks and head butts are great fun and a valuable scoring technique. The trick is positioning and timing. Head butts are great for deflecting passes, often right into the goal. Bicycle kicks are also useful for passing and simply moving the ball away from your goal. When the opposing goalie throws the ball into play, line up behind the other team's center. Counteract his bicycle kick with one of your own for an easy score.

8. **Sorry 'bout that, Coach.** This is a "write intensive" program, constantly updating information on disk. Therefore, never, *ever* turn off the computer when the program is accessing the disk drive. At the very least you'll forfeit the current game. At worst, you might reset the League (a real heartbreaker) or even permanently damage the disk itself. Fast load cartridges are also a must—the program features several periods of long, slow disk access.

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with other teams in the League. Make them an offer they can't refuse. Curiously, the computer will *never* initiate a trade. Finally, send your team to training camp. to boost each player's overall rating.

Superstar Soccer offers several variations of play: one-player, two-player head-to-head (practice only), two-player cooperative mode, and the computer playing itself. Depending on the mode selected, you must also decide who will handle each team's goalie, center and coaching responsibilities. In single-player mode, for example, you may control the coach (highly recommended) and the center or goalie (but not both). The computer controls any remaining positions.

Game play consists of both on-field action and the coaching screen. As coach, constantly adapt your team's offense and defense for maximal impact.

For offense choose either "pass" or "shoot." The **Pass** strategy gives ball control to the Center Forward whenever possible. **Shoot** is an effective strong-arm offense for aggressive play, particularly when you are behind in the game. In this mode, Wingbacks get off a lot of shots and play the rebound well.

On defense, choose **Defend 1** for an ultra-conservative defense (when sitting on a big lead), or **Defend 2** for slightly looser zone play. **Cover 1** switches to man-to-man defense, often used when playing "catch-up." In this mode, Wingbacks take risks, go for the steal, bump and harass the other team. Often this results in fouls, injuries and lost opportunities. **Cover 2** is similar, but even more aggressive.

Finally, as head coach you can make player substitutions during the game. Replace tired or injured players with back-ups, but be careful not to place them out of their natural positions. A left Wingback makes a lousy Goalie.

The on-screen action is both fast and furious, set against a beautifully scrolling field. Graphics are quite small but feature highly detailed animation. Of special note: Players are represented as solid, three-dimensional bodies. They do not run straight through each other like ghost images, but will bump (and often fall down).

Joystick control is almost perfect. Players dribble the ball automatically and kick the ball with the aid of a directional indicator at the top of the screen. Passing the ball (when playing Center) is tricky, but once learned can make a big difference in your game plan.

Center Forwards use several tricks to enhance their performance. "Heading" the ball and "Bicycle" kicks are both effective means of passing and scoring. All players, except goalies, have this ability. Centers may also use "aggressive running" (holding the fire button while running) for burst speeds during fast breaks. Go easy, this feature is very tiring.

The art of Goalkeeping is not covered much in the manual. Basically, players simply move the Goalie into position and press the fire button to block a shot. The computer automatically selects the appropriate defense (dive, leap, etc.). A Goalie's recovery time is very important, controlled by his skill level.

Injuries are common and send a star player to the bench for an entire season. For the most part, this is merely random misfortune. Games are also under the eagle eye of some tough referees. Penalties and free kicks occur frequently.

Sports games come and go, often losing their appeal with repeated play. *Superstar Soccer* thrives on constant play, getting better and better as your skill increases. A wide variety of integrated features makes this one of the finest sports games available for the Commodore 64. C

Reviewed by Russ Ceccola

Zoom!

Computer: Amiga
Publisher: Discovery Software International
163 Conduit St.
Annapolis, MD 21401
Price: $29.95

Arcade games for home computers never seem to measure up. Either they lack the game play or intensity of the original arcade version of the game, or they don't have enough excitement and originality to stand alone in an arcade. Discovery Software International has found the "right stuff" as far as arcade games go for the Amiga. Their first game was a translation of the hit game *Arkanoid* to the home market. The Amiga version was excellent—the only home translation of an arcade game to duplicate the original exactly. With the release of *Zoom!*, Discovery Software International is sure to have another hit—this time with an addictive, original, highly entertaining chase game.

In *Zoom!* you move a small ball called "Zoomer" around a grid that you see in a full three-dimensional perspective. There are so many intricacies to the game play of *Zoom!* that Discovery Software International should consider marketing *Zoom!* to an arcade game manufacturer. As you move Zoomer around the grid of squares, he (?) leaves a lightly colored trail behind him. If you surround a square in the grid in this manner, the square is colored in. The object of *Zoom!* is to move Zoomer around the grid, coloring every square while avoiding all of the creatures that are chasing him.

Zoom! has 50 levels, of which I've only seen eight. Before you scream that I shouldn't have reviewed this game after playing it for such a seemingly brief time, let me mention that the programmers themselves have only made it to level 12. Why is this so? *Zoom!* is easy to play, but every time you think you have the level finished, something else pops up to stop you—something the programmers have come to refer to as the "oops factor." Don't worry—the game is really easy to play (the truth), and most of your time will be spent refining your skills on each level.

Zoom! is easy to play, but every time you think you have the level finished, something else pops up to stop you.



Each grid that I've seen in *Zoom!* is entirely different and requires a new strategy to finish. After the first one, most levels have square gaps in the grid that require more preparation and planning to avoid and draw around. Sometimes, these gaps have only one square spanning them; at other times, the gaps are only one or two squares wide. In any case, prepare for the worst as you play *Zoom!* Watch out for Black Holes that appear at the intersection of lines of the squares at the corners, preventing you from finishing those four squares and causing you to lose a life if you fall in the hole. These holes move throughout the course of the level, and they may pop up just as you're finishing a square—the "oops factor" again.

Zoom! is more than just surrounding the squares with your trail. The two things that ensure this are the various bonus items that pop up throughout the grid that you can run over with Zoomer and the various creatures that you encounter. All of the creatures that I've seen will kill Zoomer with a touch. Jaggernaut simply chases you, but other bugs (Wormletts) chase you and color over your trail with a darker color, meaning that you have to redraw that trail. You inevitably bump into Spheroids as they move back and forth in a straight line. I know that there are more enemies on the grids past level eight, but I haven't seen any of them except in demos and screen shots.

The presence of the bonus items is the make-or-break feature that confirms the success of *Zoom!* There are eight bonus items that may pop up on the grid. You collect them simply by moving Zoomer over them. Only by knowing what the bonus items are good for can you fully appreciate *Zoom!* The eight bonus items are named: slow down, quadro, bonus points, next level, magic, freeze, speed/points and nobody knows. A brief description suffices for each, but first I must describe some strategy that is involved in *Zoom!*

On the display screen are two meters on either side of your score and the current level: a magic power meter and a point meter. The point meter is where strategy comes into play. You might be tempted to—and sometimes have to—surround only one square. You get a certain amount of points every time you do this. The higher the point meter, the more points you get per square. However, the meter goes down gradually, reducing the number of points you get per square. To get more points per square, you have to increase the meter height. You do this by leaving the line between two squares uncovered, finish the other three sides of both squares and then get the line between them, thus coloring two squares at once. The meter goes back up (with an audio indicator) and you will get the maximum points per square. You have to continually color two squares at once to keep the meter high and get more points. Leaving squares open like this brings strategy into play.

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The "slow down" bonus item is a tube of glue. When you run over it, the enemies slow down, but you move at regular speed. The "quadro" item is a red apple that sits at the intersection of squares. When you collect this item, the number of squares (up to four) that are connected at that intersection are automatically colored in. The "bonus points" item is a yellow money bag that adds points to your score. The "next level" item is a gray rocket ship that immediately takes you to the next level.

The "magic" item is a blue vial and is the most important to get. When you run over it, the magic meter goes to the top, and as long as there is still something left on the meter which gradually goes down like the points meter, you are invincible. You can pass through enemies without losing a Zoomer, and the only thing that can kill you are the Black Holes. The "freeze" item is an ice cube and stops all opponents for a few seconds. The "speed/points" is a piece of candy and adds to your score and your speed a bit.

The "nobody knows" item is a red question mark that takes second priority to collect after the "magic" item. The "nobody knows" item can act like any of the other items and shows how it is acting by displaying a picture of its current use at the top of the screen. This item can also give and take away Zoomers and give points, as well as create a hole right where it was for you to drop through.

Playing *Zoom!* involves making sure that you collect the right items, keep the point meter high and try to clear all the squares as quickly as possible. This is easier said than done! Ultimately, the longer you can keep the magic meter active, the easier a particular level may be. Immediately go for any "next level" items that come up and "freeze" items to give you free room to move. Also, take your chances with the "nobody knows" item; chances are that you won't get a hole or lose a Zoomer.

In addition to the bonus items, you also have three bombs that you can use to create tiny gaps in the outline of the grid for any enemies close on your tail. These stop the enemy (and you) from moving over that part of the grid for a second or two. The enemy can munch the space up, but you have to wait until it clears. Don't get yourself stuck between gaps that you created! The bombs rejuvenate themselves, so don't worry about losing them.

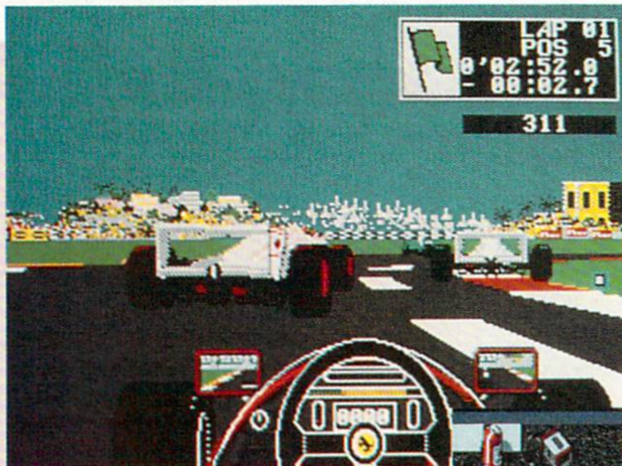
You can play *Zoom!* in one-player, two-player alternating, or two-player competition modes. By far the most interesting is the latter. In this mode, both players are on the screen at the same time and are trying to finish the screen before the other while getting the most points. Although you can't erase the other player's squares, you can sure beat him to them. So think fast and grab those squares in pairs to get the most points and beat your opponent.

The most important part of *Zoom!* that separates it from other arcade games is the fact that it was written for the Amiga. This means that the colors, animation and sounds are superb. The introduction animation sequence, featuring the Zoomland magic show is the best animation I have ever seen on the Amiga—and that's just the introduction screen. The sounds throughout the game are great, combining music and sound effects to give that arcade feel. I honestly think that *Zoom!* will top the home computer arcade game charts in no time. *Zoom!* has an interesting objective, addictive quality (that almost kept me from writing this review on time), better-than-arcade quality graphics and sound, and it's easy to play. What more could you ask for? ■

Reviewed by Steve King

Ferrari Formula One

Computer: Amiga
Publisher: Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
Price: $49.95





Each Grand Prix race has six distinct track sessions which are spread out over three days.

In an effort to distinguish *Ferrari Formula One* from the myriad of racing games on the market, Electronic Arts has decided to designate it as a "Grand Prix racing simulation." What's the difference? To appreciate what Electronic Arts has done, a little racing background is required. The Grand Prix is not a single race, but a series of races which take place from March through October all over the world. One class of race is Formula One which is a specific set of vehicle parameters which all entry vehicles must meet. In this simulation, you are the proud owner of a 1986 Ferrari Formula One, and your goal is to fine tune your vehicle so you can race (and hopefully win) at the 16 tracks on the 1986 Grand Prix circuit.

When the program begins, the Race Control Panel appears showing the date, time, skill level and information about the race track you're at. At this point, you have the option of changing any of these parameters, including skipping ahead to the track of your choice. But if you're playing the whole simulation, it's best to leave things be as you will start out at Fiorano, Italy—home base for your Ferrari. At each track, a Paddock Screen is displayed, the paddock being the "backstage" area adjacent to the racetrack. What you see is a view of a number of buildings, each representing a different function. At Fiorano, as opposed to the rest of the tracks, there are more facilities available. You have at your disposal seven different areas, including the pit, a wind tunnel and a garage. An icon at the top left of the screen indicates the weather—an important factor in any race. To select the area you wish to enter, just hold down the mouse button and move the pointer across the screen. The pointer arrow will change as you pass over the different buildings and areas, and you release the button to go there.

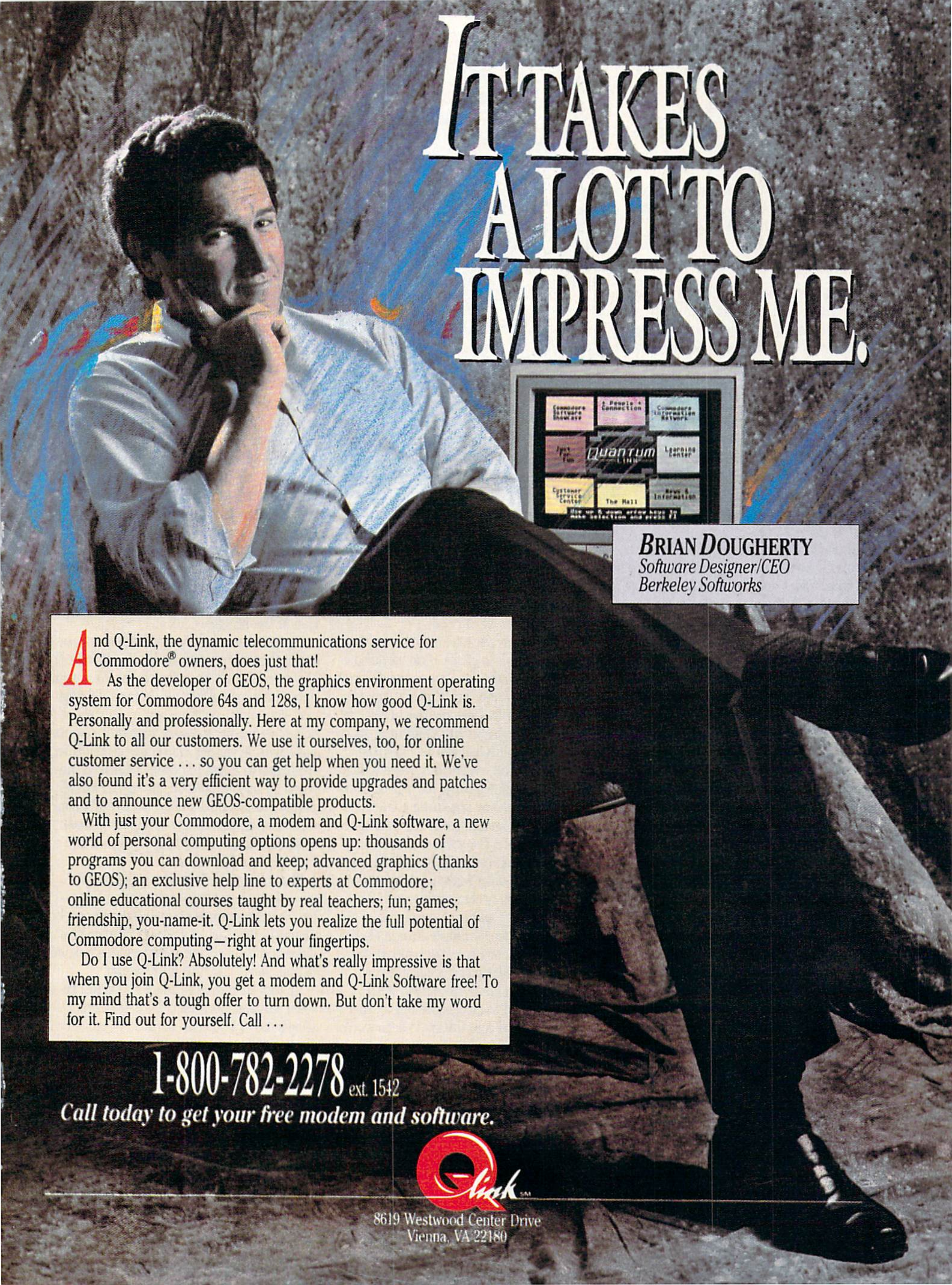
As this is a simulation, you have control over the various systems on your Ferrari. To access these, you must visit either the garage or the pit. Here, you find an overhead view of your vehicle surrounded by various pieces of equipment. Dragging the mouse pointer icon over various sections of your vehicle (wheels, engine, suspension, racing wings) and releasing the mouse button displays the control panels for each of those systems. You can vary such items as tire composition, gear ratio, air/fuel mixture, wing angle, suspension, etc. Different combinations of settings will produce different results on the track, depending on the number of curves, weather conditions and type of race. If you're really at a loss to figure out just how everything should be adjusted, all you have to do is ask Mauro. Mauro? Who's Mauro? Mauro is your ever-knowledgeable crew chief. Like Carlton the doorman, you will never see him, but his presence is made known on the system control panels where his recommendations are always indicated. No need to follow them, but . . .

There are several ways to test the results of your adjustments. The first is the Wind Tunnel where you can check your Ferrari's wings. Using the mouse, you change the wing angle and increase the wind speed. As you do this, a dynamic wind performance graph indicates the results of your efforts. The second is the Dyno Room where you can continually change the age of your engine, the air/fuel ratio, the turbocharger settings, and the RPM to obtain a dynamic graph analysis of performance. The last and perhaps best way to test your adjustments, however, is to actually take a spin around the test track.

On the track, your view is from the cockpit of your Ferrari with a rear-view mirror on either side. A box at the top right contains race information (such as time and laps), and a simplified dashboard control panel monitors your systems. Your tires have faint white lines across them which change during the race to indicate wear and the possible need to pull into the pit to change tires. At the lower skill levels, the gears change automatically as your speed changes, but at higher levels, you shift using the keyboard (which also controls the turboboost).

Acceleration, braking and steering are controlled by the mouse. To begin, just push the mouse button, rev 'er up, and take off. Steering at high speeds, particularly around murderous curves, is extremely difficult and often frustrating with the mouse—even with practice. But if you start with slower speeds, the task becomes manageable. There is also a Passenger mode option where you can sit back and leave the driving to the Amiga. At the end of each lap, you can pull off to the side and go to the pit where you can service your vehicle.

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IT TAKES A LOT TO IMPRESS ME.
BRIAN DOUGHERTY
Software Designer/CEO
Berkeley Softworks
And Q-Link, the dynamic telecommunications service for Commodore® owners, does just that!
As the developer of GEOS, the graphics environment operating system for Commodore 64s and 128s, I know how good Q-Link is. Personally and professionally. Here at my company, we recommend Q-Link to all our customers. We use it ourselves, too, for online customer service . . . so you can get help when you need it. We've also found it's a very efficient way to provide upgrades and patches and to announce new GEOS-compatible products.
With just your Commodore, a modem and Q-Link software, a new world of personal computing options opens up: thousands of programs you can download and keep; advanced graphics (thanks to GEOS); an exclusive help line to experts at Commodore; online educational courses taught by real teachers; fun; games; friendship, you-name-it. Q-Link lets you realize the full potential of Commodore computing—right at your fingertips.
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Reviewed by Ervin Bobo

Publisher Plus

Computer: Amiga
Publisher: Brown-Wagh Publishing Co.
16795 Lark Avenue, Suite 210
Los Gatos, CA 95030
Price: $99.95

Because the term is used loosely, there are not as many "desktop publishing" programs for the Amiga as you might think. Lacking an industry definition, the category has been so haphazardly applied to any program including pictures and type on the same page.

For this reason, it is a pleasure to find *Publisher Plus* which fits the narrower definition. A revised version of *Publisher 1000*, which debuted almost a year ago, *Publisher Plus* corrects the faults of the earlier program, adds the ability to print through the Postscript language/protocol (for laser printers) and emerges as one of the front-runners in a race where not all contenders are legitimate.

The heart of desktop publishing is the elastic box (here called a guide) that must be stretched into place on the blank page. Into these guides, you then pour text or graphics—but only one or the other to each guide—and it is this system that allows the mixing of fonts as well as the mixing of text and graphics on the same page. Think of each guide as a separate page which, when combined, gives you a full publishable page.

Since most of us equate publishing with newsletters, *Publisher Plus* uses that format as a default setting. There is a large area for headlines or logos, and below that the remainder of the page is divided into three equal columns/guides. Since this can be changed through the requestor window—specifying two or four columns or changing margins, for example—the laying-out of a blank page is the easiest I've seen yet.

Nor it is necessary to strictly adhere to conventional forms: any guide on the page can be moved or resized as necessary, using the same methods you'd use on a Workbench window, unwanted guides may be deleted with a few mouse clicks, and new guides may be added.

Once the guides are placed to your satisfaction, it's time to enter text. Unlike some other programs, *Publisher Plus* allows you to type directly into the column/guide you'll be using and provides such



BOB CLARK

A revised version of *Publisher 1000, Publisher Plus* corrects the faults of the earlier program and adds new features.

word processing tools as insert, delete and backspace, as well as cut, copy and paste. Once a column becomes lengthy, this can be a slow process as the graphic updating of the screen lags behind your typing speed. This screen updating has been greatly improved over *Publisher 1000*, however, and in *Plus* the problem seems negligible.

As an alternative, text may be written and edited on some of the more popular word processors for the Amiga, saved in ASCII format, and then "flowed" into the appropriate guide. Because this makes it more difficult to judge the amount of space necessary to hold your words, *Publisher Plus* gives you an overflow feature which allows a text file too large for one column to spill over into the adjoining column.

Fonts are also necessary to desktop publishing, and eight fonts are provided on the program disk in 9, 12, 24 and 32 point sizes. For those who wish a greater variety, the program is compatible with *Zuma Fonts*. Any font used is also capable of being altered by the standard Amiga styles (bold, underline or italics) or combinations of these. Each font must occupy its own guide. For example, a masthead with three fonts used to create the name, the publisher's name and the issue date would require three guides.

Another prerequisite of true desktop publishing is the ability to make text look as if it were typeset. Normal justifications such as left, right, center and full—though helpful—will not do the entire job. *Publisher Plus* addresses this by providing both a "kerning" and a "microspacing" feature. Although the terms are sometimes used interchangeably, microspacing allows automatic spacing adjustment between all letters in your manuscript while kerning allows such spacing on an individual letter basis. Added to this is the ability to adjust "leading," the amount of spacing between lines of type—normally a function controlled by the selected font.

Through requestor windows, you specify the amount of microspacing or leading and then reflow the text. Because of the WYSIWYG display, you'll know almost immediately whether further adjustments are needed.

Without these three formatting features, the claim of many programs to be desktop publishing is dubious. With them, *Publisher Plus* legitimates its own claims.

No guides are necessary to add graphics to a page. By placing a graphic directly on the page, it becomes subject to "cropping," in which unwanted portions can be deleted; and to resizing, in which the entire picture can usually be made to fit the available space. Of course, resizing in only one direction—making the picture taller, for instance—will result in some distortion of the image.

Graphics can be created with any program that stores pictures in the standard IFF format, but since *Publisher Plus* uses only black-and-white renderings, I'd suggest you create original art in only those colors. Full-color artwork imported to your page will be shaded into black-and-white, resulting in a loss of detail. Digitized pictures and those created through a HAM process, (even in IFF format) usually contain such a wide range of delicate shadings that their renderings by *Publisher Plus* leave no detail at all.

Text cannot be flowed around graphics—since they occupy separate guides—but the appearance of such flowing can be achieved by placing your graphic on the page and then creating text guides around it that you'll later fill with words.

To test this, invoke the Full Page Preview feature. Because *Publisher Plus* shows only about one-eighth of your page—with smooth scrolling to any part—you may often find yourself wondering how things are going. With the preview feature, a representation of your full page will appear at the right side of the screen, giving you a total view of your layout.

For printing, you can choose from the full range of printers supported by Workbench including the Hewlett-Packard La-

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Reviewed by Steve King

Photon Paint

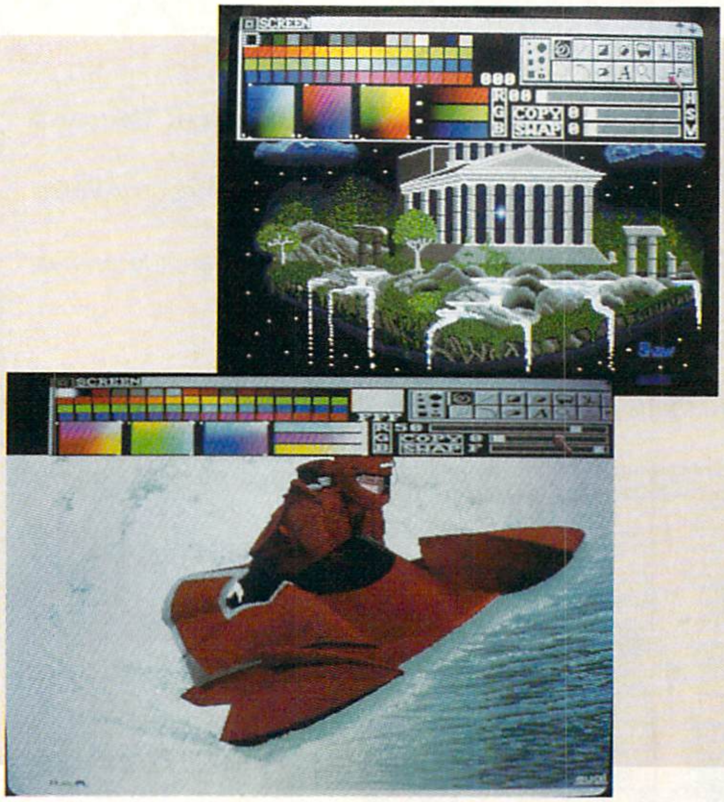
Computer: Amiga
Publisher: MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
Price: $99.95

Until recently, many graphic design programs didn't really take advantage of all of the Amiga's capabilities. *Photon Paint* is a "state of the art" HAM (Hold and Modify) paint program which fully utilizes the graphic powers of the Amiga and provides a number of unique and powerful professional features at a very reasonable price. Most remarkable is its ability to let you draw with and display all 4096 colors on the screen at the same time!

A horizontal "fast menu" which takes up a quarter of the screen provides access to the basic drawing functions (lines, rectangles, circles, etc.) as well as select colors. MicroIllusions thoughtfully allows you to move this menu around the screen to get it out of the way. While the fast menu may seem quite familiar if you have used other paint programs, the similarity stops there. Appearing on the left side of the fast menu are 64 (count 'em, 64) separate colors from which to choose. You have the option of extending the fast menu to display the color palette. To the left are three squares representing the three dimensions of a color cube. By manipulating the mouse pointer in these squares, you can choose any one of the 4096 colors available and assign it to one of the 64 squares. You can also change colors by clicking on one of the squares and manipulating the RGB (red, green, blue) or HSV (hue, saturation, value) sliders.

Now for the amazing part. If you painted on the screen using the color from color square 20, you can change that square to a different color without changing the color you previously painted on the screen! Not only do you have a choice of 4096 colors, but you can also use all of them in the same painting, (although it may take a while to use them all).

There is, however, a slight glitch. Because of the way the Amiga renders HAM images, certain colors when placed next to or on top of other colors develop a fringe of a different color around the edges. Unsightly indeed. Working under the technical restraints of the hardware, *Photon Paint* seeks to minimize these occurrences



by calculating the best colors to use. You can even instruct the program to modify its colors so that any particular color you use will appear without the fringes. This option, however, may cause adjoining or background colors to change.

By the way, the first 16 colors are the base colors from which all the remaining colors are derived. The default values have been pre-selected to produce the best results under most circumstances, so you should probably leave those squares alone. You can also create a spread of color shades between two selected colors in either the RGB or HSV mode, as well as swap and copy colors.

The fast menu also gives you the ability to cut out a portion of your painting to save or use as a brush. You accomplish this by either framing a rectangular section of the screen or by tracing around the particular area you wish to capture. One nice feature saves your custom brush in memory, so you can use one of the standard brushes and then restore your previous brush without remaking it.

The Pix command lets you to pixelize any portion of your painting, giving it a mosaic effect. You can even adjust the amount of pixelization.

Like other paint programs, you can magnify selected portions of the screen for fine detailing. *Photon Paint* allows you to select various levels of magnification as well as the size of your magnification screen. Text is easy to render with any standard Amiga font, and you can change font disks at any time as well as stylize any font. Two special options let you produce an outline as well as a reverse image.

Several innovative features are bound to make *Photon Paint* a success. The first is the Blend mode. In the Normal mode, any graphics rendered on the screen will appear as solid images which totally cover the background on which they are placed. Blend lets you control the degree to which your image or brush overlays what is beneath it. For example, if you have a picture of a room and an image of a ghost, you can capture the ghost as a brush and place it in the room so that the room shows through the ghost. By adjusting the parameters, you can make the ghost transparent or opaque. When using the Blend mode, a special window appears with a grey-scale rendition depicting the extent and direction of the blend.

Using the mouse in a variety of ways (including drawing graphs in a rectangle) you can produce virtually unlimited effects. You can also control the amount of dither (the degree to which your image is sharp or fuzzy), although the colors used in dithering cannot be specified and ap-

Continued on page 41

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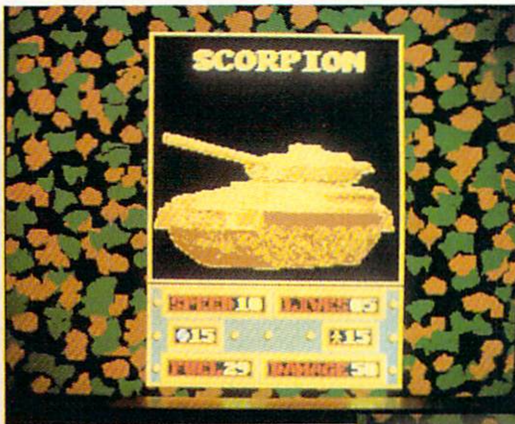
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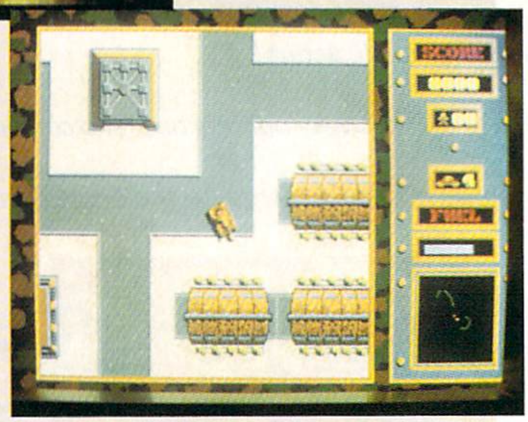
Amiga, Inc., Commodore Electronics, Ltd., Apple Computer Inc., International Business Machines and Atari Corporation. Advertisement by Qually & Company Inc., (Chicago.) *If you think you've got the technical and creative ability to develop mind-blowing video games, write to Taito, Attention: Product Development, at the above address.

Reviewed by Gary V. Fields

Fire Power

Computer: Amiga
Company: MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
Price: $24.95





The game's dozens of unique features and actions establish new standards that other arcade designers will be hustling to match.

Fire Power is a tank game, which looks and plays like nothing ever seen on either a computer screen or in an arcade cavern before. If you love a good game which mixes arcade action, realistic sound, and the challenge of a real battle, check this one out.

I must admit I have a prejudice for good war games, especially ones which operate in real time. So for me, the six months which passed between the time I saw the pre-release version of *Fire Power* and the finished game were annoyingly slow. But the polished graphics, digitized sound effects, real-time speed and bug-free operation of the completed *Fire Power* game have made the delay worth the wait.

One of the first arcade games I fell in love with (back when displays were black and white, graphics were blocks and games ate quarters) was called Tanks. In that game you and your human opponent battled across a single screen and the tanks rumbled and reacted at an annoyingly slow pace, but the game and human competition was great. The only resemblance *Fire Power* has to that old arcade game is that it uses tanks and it's fun.

The game can be played in three modes: (1) human against human, (2) human against computer, plus (3) human against human via modem. I personally prefer games which allow me to compete against another person, since I get more satisfaction from beating a peer than a microchip. So I appreciate *Fin Power*'s two human vs. human options. When playing against another person in the same room, two screen windows are displayed showing both gamer's tanks and the surrounding terrain. When the two tanks come into sight of each other, both windows display the same screen. The game's modem option supports both 1200 and 2400 baud exchange rates. Regardless of which you select, the action is fast, challenging and non-stop.

You also have the option to select which type of tank you will command—each have varying strengths and weaknesses. Some tanks are more heavily armored, others move faster, another carries more fuel and has more room for transporting men. But best of all, the game has no boundaries, so you can roam endlessly without running up against an artificial wall. Neither is the playing field static—each time you boot the game a different battlefield is generated. Certain features always appear, but not in the same location, including: roads, buildings, gun-mounted fortresses (which you can blast into), two hospitals, fuel depots, infantry, mine fields, maintenance garages, attacking helicopters, etc.

The object of the game always remains the same—to use your single tank to battle through all the enemy defenses and capture its headquarters before yours is taken. If you don't keep moving, enemy helicopters will attack you, but if you don't move cautiously into new territories you may fall into an enemy ambush or mine field. If anything (trees, walls, buildings, etc.) gets in your way, you can blast them away. If infantry get too close, you can splat (with graphics included), blast or rescue them.

When playing via modem the game still has two windows, but instead of one showing your tank's position while the other shows your opponent's (as in the non-modem modes), one window displays terminal operations. Once you log on with your opponent's computer (a completely automated activity) you can send typed messages back and forth. Apparently the people at MicroIllusions recognize a good idea when it crosses their desks, and *Fire Power*'s modem operation was one (they are releasing a whole series of modem-capable games). The ability to play a friend across town (or across country if you can afford the long distance phone charges) is a real plus which greatly expands the game's fun range. If you are like me, getting together with a friend for an hour or so of games isn't always easy, but finding the time to phone a friend for a chat and a quick turn at "total destruction" isn't so difficult. The one drawback is that both you and your friend must have a copy of *Fire Power* before you can battle over the telephone lines.

The game's excellent visual displays, combined with some unique features make it an arcade/wargame which stands out from the pack. While it has all the traditional shoot-'em-up qualities which give most arcades their appeal, this one has more. For instance, you can increase your score by blasting enemy prisoner barracks and rescuing captured troops. But there is a problem—at a distance all infantry look

Continued on page 81

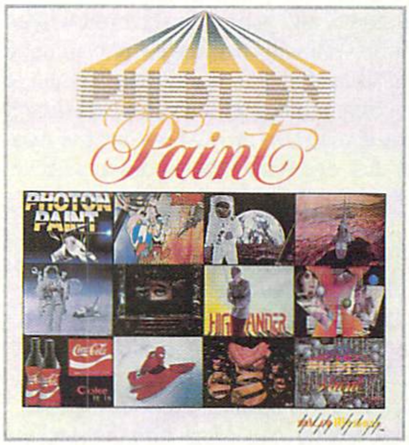
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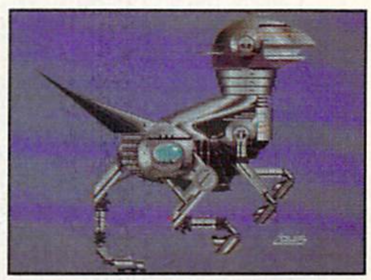


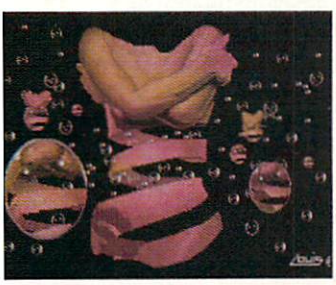
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12-112

Reviewed by Jeffery Scott Hall

Custom-BBS!



Computer: Amiga
Publisher: Celestial Data Systems, Inc.
279 S. Beverly Drive
Suite 1010
Beverly Hills, CA 90212
Price: $100.00

Just when you thought you were sitting in sysop heaven, along comes *Custom-BBS!* to really dazzle your callers. With *Custom-BBS!* you can have a totally Customized Bulletin Board System with features previously available only in mainframe computers!

Getting Started

First make a backup of the *Custom-BBS!* disk. (*Custom-BBS!* has no copy protection of any kind.) From now on, you should use your backup instead of the master disk. Next sit down and read the manual from beginning to end before you even try to alter the defaults for *Custom-BBS!*

Now you're ready to run *Custom-BBS!* Simply insert the disk in drive df0: and it will automatically load after requesting the current date and time. A window at the top of the screen displays the current caller's name and I.D. number (if there is one); the current date and time; how long it has been since the last caller; the users' statistics (i.e., number of uploads, downloads, the last message posted, etc.); and whether or not the caller has tried to page you.

If you are using the system for the first time, you will be asked if you wish to generate main BBS files. At this point, you should answer Y. To enter the system, press the space bar, and to exit to DOS press the ESC key. When you enter the BBS, you will see the login text followed by a prompt requesting your I.D. number. Since you are new to the system, type N at the prompt. This will take you through the standard new user information. Since you will want to create your sysop account when doing this, you should answer all the prompts correctly. Next you will be taken back to the request for your I.D. where you can now type the number it gave you (it should be I.D. number 1). Type in your I.D. and password, and you will be logged into the system.

Once you have logged in, you will see the main menu. The first thing you should do is select the Your account command, and change your access level to sysop by pressing the F5 key and then the space bar. Now, all your information will be stored, and your sysop account will be set up. You will then see every command that is available in the system. Try out all the commands, and have fun experimenting. If you mess up, just re-copy the master disk and follow the procedures above for setting your sysop account.

Unique Features

First I can safely assure you that all standard BBS commands are supported. The most unique features of *Custom-BBS!* include random pop-up quotes, important dates in history (according to what day the caller logs into the system), ANSI colors, the support of up to 9600 baud, the ability to have either a dating or business questionnaire, up to 75 different message and file transfer sections, and voice-activated sysop paging. Also, you will find that *Custom-BBS!* supports full multitasking and can be run from hard disk.

Customizing Your Custom-BBS!

Here comes the fun part, customizing your BBS! To do this, you will need either a word processor or text editor that supports standard ASCII. All of the files that *Custom-BBS!* uses for access are standard ASCII, including the menus. This gives you full control of how you wish to run your system. This means that you can create your own ASCII files, save them to disk and recall them later for either editing or creating a brand new file.

There are too many files that make up *Custom-BBS!* to discuss here, but I will talk briefly about the major one, prompts.txt. This file includes all of the major key workings for your BBS, including the menus. In this file, you will find the log-in text, new-user text and many other items you can edit. The most unique feature is the inclusion of menus in a standard text file. This will allow you to simply load the prompts.txt file and edit the menu the way you wish. *Custom-BBS!* supports 20 different access levels, giving you complete control over all of them. Also, you can alter the one character symbols for all 20 levels (i.e., level 20 is sysop level which could be represented as S). However, if you do alter the user symbols, be sure that you do it before you generate the main BBS files. If you don't, then it will not recognize it and your system will malfunction. This BBS can be configured in any way you wish and gives you complete control over all functions.

At the present time, you have only two choices of how to run your BBS, from either floppy or hard disk. If you choose, you can run your entire BBS from hard disk by simply copying the BBS files in the BBS directory to the hard disk BBS directory. The other method is somewhat limited, you must have the BBS directory in df0: and the files directory (upload and download) in either df0: or df1:. However, they will be improving this in the next version (see Summary).

You will also find eight different pre-defined function keys for the sysop:

F1—force chat interrupt
F2—add a predetermined number of minutes to online caller
F3—change online user to level three
F4—change online user to level eight
F5—change online user to sysop
F6—turn off serial device to make the system invisible to online user

F7—toggle printer on/off
F10—disconnect current online user

A Word of Warning

The copy of *Custom-BBS!* I used for review had a major flaw in the startup-sequence. I kept getting a GURU MEDITATION ERROR when I was testing the questionnaire. This was due to the fact that the startup-sequence did not set the stack to 15000 bytes before the BBS was run. If this is not added to the startup-sequence, the system will crash every time a user wants to answer the questionnaire. To avoid this, simply delete the old startup-sequence and replace it with the one listed below.

If you have an Amiga 500 or 2000 or an Amiga 1000 with an internal clock, then you may want *Custom-BBS!* to autoboot. If you do not have an internal clock and wish only to correct the bug, then simply leave out the lines below marked <leave out>. Copy the following commands from your Workbench disk, C directory, to your BBS backup disk, C directory: Stack and SetClock (depending upon if you have an Amiga 500 or 2000).

```
echo " "
echo "Your BBS Name"
echo " "
stack 15000
SetClock >NIL: Opt load <leave out>
Date <leave out>
cls
type texttype
cd df0:BBS
run Custom-BBS!
cls
loadwb
```

Requirements

Custom-BBS! can be run on an Amiga 500, 1000 or 2000 with a minimum of 512K and two disk drives. *Custom-BBS!* will support more memory, and if it's a recoverable RAM disk you can copy the whole disk to RAM (providing that you have at least 2MB). You will also need to have an advanced knowledge of the CLI, because you will constantly be using it to maintain your system.

Celestial Data Systems will be constantly upgrading *Custom-BBS!* (version 1.2 was scheduled for release in June). And they *will not charge* the owner for the upgrade from 1.1 to 1.2. Simply send back the master disk, and you will have your upgrade sent back free of charge. Now that's service! The new version will include the following enhanced features:

1. Voting on the sysop's chosen topics.
2. The ability to choose what drive and path you want for your files, messages, boards and profiles.
3. Hot Keys for all menus (so you can execute the command before you get the prompt).
4. A "cleaned up" prompts.txt file.
5. Support of SIGs.
6. WXmodem and possibly more file transfer protocols.
7. The ability for the sysop to add a user without having the user calling the system.
8. The option for the sysop to toggle the Chat option on/off.
9. Sysop-defined number of last callers to the system (i.e., 10, 50, 100, etc.)
10. The ability for the caller to abort the questionnaire at any time.
11. Multiple answers to the questions defined in the questionnaire.

I have been using *Custom-BBS!* since the day I got it, and to this day it has never crashed! Celestial went out of their way to make it as clean, neat and bug free as possible. I use it, I love it, and I think you will too. All other Bulletin Board Systems should move over, for *Custom-BBS!* is the answer to every sysop's dream! ■

Amiga Software Reviews/Photon Paint

Continued from page 35

> Imagine that a picture you have created is on paper and you can wrap it around a geometric shape such as a ball or a cone.

pear to be various shadings of the chosen color. Text rendered in the Blend mode will also be affected—with no need to place text and then fill it. You can achieve very striking graphic effects by using large font sizes with the Blend mode.

I have saved the most unique feature for last—surface mapping. Imagine that a picture you have created is on paper and you wrap it around a geometric shape such as a ball or a cone. Believe it or not, *Photon Paint* lets you take a portion of your painting you have picked up as a brush and do just that. You can also paste the image on three sides of a cube (which can rotate on all three axes for the best perspective), as well as wrap it around an irregular freehand-drawn shape. By activating the LUM(inosity) function, the wrapped shape will be drawn as if a bright light were shining on it from a user-defined location (no shadows, though).

Two other brush-related features should be mentioned. Again, imagine you have an image on a piece of paper. Now twist the paper around one, two or three times. Yes, you can do that too with the Twist function. With the Perspective function, you can take an image and rotate it around any of its three axes and at the same time control the distance from your viewpoint. You can also shift your viewpoint around the brush! And all of this by using the mouse. Finally, *Photon Paint* operates only in the 320 mode (normal and interlace) with overscan capabilities. While it has an alternate screen, there is no "rub through" function or automatic ability to copy one screen to the other.

So what's *wrong* with *Photon Paint*? Not much. The most annoying aspect is that flickering streaks of color follow custom brushes around the screen, and strange colors fill the screen when you are making geometric shapes. These disappear, however, when you have placed the image on the screen in its final location. The fringes of unwanted colors between objects are more a function of the limitations of the Amiga HAM mode than of the software, and experimentation with different colors will usually eliminate this problem.

There is also no function (such as Tiling or Wallpapering) to fill the screen or a defined area with a repetitious pattern from your brush. Additionally, there is no "spray paint" function, and it appears you cannot paint using a custom brush. MicroIllusions will be addressing these complaints in an update. To fully utilize all of *Photon Paint's* capabilities, you need at least 1MB of memory, although the program (at least most parts of it) will work with 512K.

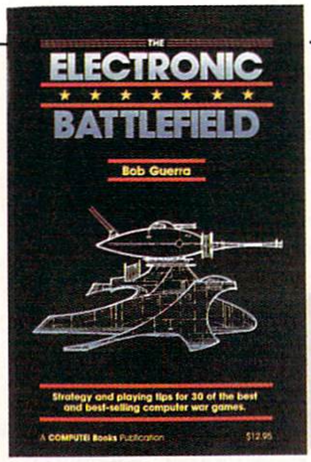
Photon Paint comes with a slick 96-page, spiral-bound manual which is well written and contains several thorough tutorials on some of the more unique features of the program. There is also a second art/tutorial disk, and *Photon Paint* is not copy-protected.

You can create some absolutely stunning graphics with a palette of several thousand colors using the Blend mode. The surface mapping and twist functions are totally unique to *Photon Paint* and must be seen to be believed. It is apparent that Amiga software has entered a new era of maturity and *Photon Paint* is rooted firmly in this new age. ■

Reviewed by Shay Addams

The Electronic Battlefield

Author: Bob Guerra
Publisher: Compute! Books
324 W. Wendover, Suite 200
Greensboro, NC 27408
Price: $12.95



While clearly written, it's not cut-and-dried like a textbook, for Guerra employs analogies and humor to illustrate a concept or point.

After a hard day's work slaying legions of orcs, dragons and the occasional Evil Wizard, what does a professional adventurer do to relax? I often play a war game, because they pose different kinds of challenges. But because the skills I've honed in caves and dungeons don't apply to the trenches, I am regularly beaten by *Battlefront,* killed by *Kampfgruppe* and overrun by *Ogre*—often in the same day.

So I knew exactly how to go about reviewing this unusual book, which offers advice on 30 such games, most of which are available for the 64. Instead of starting at page one, I flipped to the section on *Ogre,* a game which humiliated me so severely—and so many times—that I tossed it in the basement a year ago. The only way I had ever beaten the supertank opponent was by using the field editor to equip my army with dozens of extra tanks, infantry units and howitzers. Sure, it's cheating—but this is war, I always told myself.

Still, the feeling of victory was less than fulfilling under such conditions, so I hoped author Bob Guerra's counsel would enable me to fight a clean fight and still emerge the victor. After a brief summary of each game's scenario, he discusses the types of weapons and some general tips before launching into an in-depth look at various strategies (your long-range plans) and tactics (what you do when something goes wrong, or more rarely—for me, at least—right, while executing the master plan). Finally, with screen shots, maps and charts to illustrate his points, he presented a step-by-step account of a game he played, explaining the significance of each move instead of just saying, "Do this and you'll win."

He also zeroed in on the enemy's "thinking" and discussed why the Ogre made certain moves in response to my own. I can't say I won the first session following this advice, since the Ogre wiped out my Command Post with a missile—but I managed to hold the enemy to a marginal victory by destroying him before he could escape. And in the next game, I achieved a defense victory by nailing the Ogre *before* it could destroy my headquarters, something I had never been able to do without stacking the deck. Needless to say, I celebrated by giving my troops a weekend pass and promoting myself to Brigadier General.

Guerra divides the book into three sections: "On the Front" (joystick battles like *Arctic Fox*), "In the War Room" (strategic and tactical games that represent the kind of program that usually comes to mind when you say "war game") and "Geopolitical Decision Making" (board games reminiscent of Risk). The first two sections are further broken down into land, sea and air games.

The titles range from some of the most venerable war games, such as *Tigers in the Snow*, to many of the most recent releases: *Silent Service* for the submariners in the crowd, *Europe Ablaze* for aerial aces, and *Gettysburg: The Turning Point* for Civil War diehards. Guerra comments on the authenticity of those with roots in historical battles. He also points out how some fictitious scenarios have actually occurred only months after the game's release, citing the 1986 bombing of Libya, a scenario he reminds us was "originally written for a computer simulation—*F-15 Strike Eagle*."

Most war games provide several scenarios for you to play, so there wasn't space to give detailed help on each one. Instead, Guerra lays out the basics of the game system, then zooms in on one scenario, furnishing strategic and tactical tips that apply to the other scenarios. Then he marches straight into a guided tour of how to beat the scenario he's chosen, usually telling step-by-step what to do and why you should do it. (In most games that allow you to choose the nation you'll represent, he reveals the strengths, weaknesses and best offenses and defenses for each side.)

In the case of *Ogre,* for example, he gives such explicit advice as: "move the first heavy tank on the left three hexes to the right to directly below the missile tank . . . the Ogre will respond by moving up three hexes and firing its main battery at your rightmost tank." Furthermore, he explains why the Ogre won't fire its missiles at this stage, providing valuable insight into how the Ogre's artificial intelligence decides what to do.

Instrumentation—all those dials and gauges and levers that fill the screen on games like *Silent Service* and *PHM Pegasus*—is thoughtfully addressed, as are factors such as terrain, fatigue, weather and other elements that might affect the outcome of a particular game. And the interface of many programs is more lucidly explained in this book than in the manuals that accompany the games.

In fact, SSI should consider getting Guerra to write the documentation for their war games, since SSI's manuals are usually harder to decipher than any code used by real military forces when sending top secret messages.

And while clearly written, it's not just cut-and-dried like a textbook, either, for Guerra employs analogies and humor (and the occasional migrant worker) to illustrate a concept or point.

In addition to the 30 titles covered in detail (most are available for the 64, only a few for the Amiga), an appendix lists many more war games, along with their manufacturers and addresses. This means you can also use the book as a sort of buyer's guide when looking for a new game, though a list of system availability would have made it more practical.

So if the other side has been beating you too often, volunteer for a tour of duty on *The Electronic Battlefield*—the West Point of computer war games, it enables you to get more out of the games you already own, as I did with *Ogre*. And the lessons learned here can be applied to other games not in this book.

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by Howard Millman

A Class of Ill Compute

Educational software that sustains a child's interest while teaching fundamental building-block concepts can be hard to find. We'll look at programs that can do just that.



Reportedly, nightmares share a common theme of being trapped. I experienced that sensation when I was confined in a classroom with 14 third and fourth grade students, each kid trilling, "Mr. Millman, Mr. Millman, this is booorr-ring. Can't we do something else? Pleeassse?" With the plea echoed incessantly, my first class reverberated like a shout in Echo Valley.

Clearly, things *had* to improve. I started by re-examining the software. My students were right, the programs were the electronic equivalent of an Edsel. Graphics were uninspired or non-existent, the animation awkward and the themes monotonous. These shortcomings were crowned by wordy manuals designed first to impress, *then* inform.

The stuff was the pits. Continuing to force feed these programs to the class was like shooting myself in the foot, neither alternative was particularly appealing.

The solution lay in finding stimulating programs to capture their interest. But how? The school, like most institutional buyers, bought software by mail order. Such buyers rely on the reputation of the publisher/vendor and the hype in the catalog.

A proverb, dating back to when wars were fought with rocks, dictates that there are no guarantees in life or in software performance. Maybe that's why most mail order vendors offer return privileges to schools if the software doesn't meet their expectations. To tip the scales in my favor, I began previewing demos or samples of software before committing the school's shekels.

About one in four packages met my expectations. Being finicky, however, paid dividends. By the third class I'd achieved my goal. The students received the kind of challenging creative software they deserved, and I had a classroom of motivated reasonably quiet kids. They and I (but mostly they) survived the year intact.

Here's one package that outlasted the inquest and another newer release that also meets the grade. Both are multi-player crossword-type games designed to dispel the despair of vocabulary development and spelling.

Crypto Cube

Ages: 8 years–Adult
Computer: Commodore 64
Publisher: Britannica Software
345 Fourth St.
San Francisco, CA 94107
(800) 572-2272
Medium: Disk
Price: $9.95
Emphasis: Topic-linked spelling
Topic/word association

Meet *Crypto Cube*'s Wuzzle, the electronic equivalent of a fur-covered meandering head. He (she?) is the on-screen Sergeant-at-arms standing guard over the cube's dialogue box, shouting directions to the players. Just following the Wuzzle's instructions and other on-screen prompts is direction enough for kids to play this informative game.

Each of the cube's four sides displays a grid much like a crossword's. Typically, there are four words per side so each round consists of twenty words. The words in each round link to a common theme. Students choose from a list of fifty theme centers, including the names of everyday items like animals, kinds of transportation, weather terms, food, clothing, colors and others.

No clues are offered to the words other than the theme heading. Like the board game Battleship, the initial moves are spent just gaining some idea of the words' whereabouts. For hopelessly mired players or students who need an advantage, an opening menu option summons a list of the 20 words comprising the round.

In a typical two-player game each student moves the cursor, via the keyboard, into one of the cube's squares seeking a contact. If the square is empty it's a miss and the square is blanked.

Hits are handled two ways. If the hidden letter is a vowel, the letter is immediately revealed. If a consonant, a question mark is displayed. Now the player must guess what the hidden letter is. The Wuzzle dances to the music when a correct guess is made.

As you can see, there's a direct relationship between the number of letters/words already discovered and the probability of correctly guessing which consonant the question mark represents. And it's also why students with superior association skills will likely excel at this game.

After identifying all the words on one face, the cube is rotated to another. The round is complete when all four sides are filled in.

Recognizing that even with fifty theme centers this bargain-priced game would have a rather limited life span, Britannica wisely builds in two longevity factors. The first is the ability to instruct the computer to generate a new puzzle format using the same words. Shifting the words around slightly extends the game's lifeline. The second option offers *Crypto Cube* the gift of immortality. Via a list management system the student, teacher or parent can create a puzzle using their own words. Keying in words related to the curriculum or a child's interests adds relevance.

Students are always asking, "Why do I need to know/learn/understand this?" Well, in this case if the words conform to a kid's interests the answer is they can describe their pastimes in writing as well as verbally.

I also looked at another of Britannica's highly regarded products, *SpellCopter*. To a similar degree, both share common at-

tributes. Unfortunately, they also share the same shortcoming, slow disk load times. Trimming the load time would encourage greater use of both in a home learning or school environment.

In a recent conversation with Tom Paderna, Britannica's product manager, I asked about their plans for revisions and forthcoming releases. Tom, holding his cards close to his vest, simply said they "are not ignoring the Commodore market" (strongly emphasizing the "not"). He continued by saying Britannica's reps had just returned from a meeting with Commodore to discuss improving the quantity and quality of 64/128 educational software. That's the kind of continuing commitment we hope to see more of.

Scrabble Crossword Game

Computer: Commodore 64
Ages: 8 years–Adult
Distributor: Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171
Medium: Disk
Price: $32.95
Emphasis: Spelling, Vocabulary and Strategy

This is the classic Scrabble, true to the original board game's rules and capturing all its time-honored appeal.

Combining Scrabble with the computer's silicon soul eliminates two of the board game's limitations. First, the disk's built-in 20,000+ word dictionary resolves players' squabbles over just what is or isn't an acceptable word. Second, since one player can compete against the computer, solitaire Scrabble is now a reality.

The computer is quite a capable adversary too, fortunately it can be handicapped when challenged by a mere human.

The transition from board to screen was implemented with foresight and skill. Players are assigned racks each containing seven letter tiles. Racks can be displayed or hidden at the players' option. As in the board game, letters can be exchanged or juggled, and players can forego their turn.

The game is well crafted throughout. It loads quickly and offers on-screen prompts as well as sound effects to accompany cursor movements. The single static graphic displays the Scrabble board complete with premium squares.

Choosing from the letter tiles on the rack, players key in a word. If the word incorporates letters which are not on the player's rack, it's a reject. If accepted, the player, via the keyboard, moves the cursor to the word's starting square on the game board. Entering a "D" for down or "A" for across directs the program to type in the word vertically or horizontally. An "X" cancels the word.

Providing the word conforms to the game's rules, the program totals the word's score. The player is offered the chance to cancel the move if the score is unacceptably low. Once accepted, the word becomes permanent.

Games in progress can be saved on a work disk. Games so saved can be readily resurrected another day.

Since the program is imported from Europe, I tested all features to satisfy myself that it performs as promised. It does.

Electronic Arts, the largest home and entertainment software vendor, distributes *Scrabble* for the British firm Leisure Genius. According to Bill Mowry, EA's product manager, *Scrabble* is Leisure Genius' first release for the Commodore 64. This past June they also announced the release of *Monopoly* for the 64, to be followed by other popular board games as they receive the licenses to transpose them to disk.

Bridging the Years

Ordinarily, I tend toward the conservative when defining a program's targeted age group. For me, eight through adult is quite a spread. With *Scrabble* and *Crypto Cube* there's a good reason for the range, as they both extend help to the junior player.

Just as *Crypto Cube* volunteers help by allowing a player to peek at the words, *Scrabble* also provides a suggested word when asked. Furthermore, *Scrabble*'s computer can be handicapped by directing it to compete at a lower skill level than its human counterpart.

For either of these games to be easier to learn they would need training wheels; both can be played by following the onscreen prompts. Which, come to think of it, is just the way we like it. Student's efforts are directed toward playing the game, not understanding the rules.

In other words, software, like manuals that are designed to first inform, *then* impress.

If you have any suggestions, questions or comments about this column, the software covered or future topics, please write to Howard Millman in care of Commodore Magazine.

Continued from page 34

serJet. As you invoke the printing option from the pull-down menu you'll be offered a sub-choice of dot matrix and Postscript as well as Postscript Disk. Selecting Postscript converts the file into a language which can be read by your Postscript-driven printer, while the Disk option "prints" a Postscript file to disk for later use.

In the matter of printers and fonts, you may want to experiment to see which combination works best for you. During my evaluation, I used the Okimate 20 printer and found that some fonts looked almost typeset while others on the same page looked like dot-matrix. In printing on a Panasonic, the situation was sometimes reversed. The bottom line is this: some fonts will be handled well by your printer and others won't be.

One shortcoming of *Publisher Plus* is the documentation. Though nicely printed and supplied in a slipcased loose-leaf binder (which *will* lie open on your desk), there just isn't enough of it. There is a very good glossary of printing terms, an index, a guide to printer's editing marks and an appendix showing the many different borders available from your keyboard.

But I would have appreciated more in-depth explanation on using the program. Further, although there is an appendix showing the resident fonts, it is incomplete. All fonts are shown in nine-point and one is shown in 32-point. All sizes in between should have been included to aid those of us who have no idea how big 24-point is.

Another complaint is that not all font sizes available are shown when the font directory is invoked. You'll find no 32-point Times, for example, but *Publisher Plus* is capable of creating it by rescaling the indicated sizes. Yet, unless you've read absolutely every word of the manual, you might never know this.

For productivity programs, documentation should be redundant: the same information should be stated several times in different ways; and the more complex the program, the more redundant the manual should be. *Publisher* falls short in this area, so some users may miss important steps and tips.

In spite of these drawbacks, *Publisher Plus* is a full-featured desktop publishing program. The layout, formatting and graphics features meet most criteria for true desktop publishing, and the program is easier to use than some others I've tried. Sparse documentation notwithstanding, this one does work and works well.

by Shay Addams

Infocom Goes Graphic, EA Gets Wasted

News and opinion from a leading explorer of those fantasy realms called adventure games.



SUSAN LIPPMAN

In a startling turnabout, Infocom—whose name practically *means* text adventure to adventurers around the world—has gone graphic. They plan to incorporate graphics in all future interactive fiction titles, and *Sherlock* will most likely be their last all-text adventure.

"Our market just hasn't been growing the way it was in the old days," Infocom President Joel Berez told me. "We still have a very solid core of loyal interactive fiction fans, but we're not picking up new people at the rate we used to. And we're even losing some of the old people, who are perhaps growing tired of products that are in many ways very similar."

Amiga owners in particular haven't been attracted to all-text games, probably because many people buy the machine primarily for its graphic capabilities. Infocom added sound effects to *Lurking Horror*, of course. But the company announced only months later that they wouldn't be converting all their releases for the Amiga, so apparently that move didn't make much difference.

Berez gave two other reasons for adding graphics: "The early machines weren't capable of producing anything but the most cartoonish forms of graphics, and the memory and disk limitations required a tradeoff—if you added graphics, you had to take out something else. With today's more powerful machines and our new programming techniques, we feel we can add to the games without taking anything away. And oddly enough, in the process of making the technical changes required to support graphics, we may also be relaxing some former restrictions, such as game size. So the basic text and logic parts of the games will likely get bigger, even as we add other features."

For Amiga adventurers, this will certainly be a boon. But 64 owners won't be happy to learn that the 64 probably won't be supported at all. The possibility exists for later games that might run on the 64, though for now Infocom is focusing its efforts on a 128-only version of their new adventures. (Even that is uncertain at this stage.) *Infocomics* will be the only 64 titles available, and these aren't adventures—in fact, they're not even games. No puzzles, no points, just a story that you can fast-forward and rewind through, a program whose only original features allow you to switch between the perspective of various characters. Infocom says *Infocomics* weren't created for adventure fans, anyway, but to attract a new market—the comic book crowd. That's why they're being sold in comic book stores and marketed through other new channels.

In another major departure for Infocom, Brian Moriarty (*Trinity, Beyond Zork*) is working on a traditional role-playing game along the lines of a *Bard's Tale* or *Wizardry*. And before that's released, Infocom will market a similar game produced by an outside developer (though Infocom people are involved with the project). Berez says this is part of their strategy to become Activision's "interactive storytelling division." (Activision bought the company in 1986.) Part of that strategy includes the move into RPGs.

When things were slowing down in the text adventure realm, Berez recalls, "We tried to figure what really made sense for us to be doing. We decided our greatest expertise was in interactive storytelling and that we wanted to branch out in this area. Just as we dominated interactive fiction, we'd like to dominate interactive storytelling, simply specializing in all aspects of that. As we've pursued that strategy, we eventually convinced Activision that it made so much sense for us to be the specialists in those sorts of products that Activision has stopped doing them."

If Infocom doesn't produce text adventures, will anyone else? Companies that tried to compete with them—notably Broderbund and Mindscape—have already given up. And most software developers will probably reason that if Infocom is getting *out* of text games, the market is too weak for them to move *into*. But some daring souls might view this as an opportunity to snare an existing audience and take a chance on some new all-text games. Infocom still has the technology to do all-text games, so the door is not quite closed on this genre.

Wasteland: Role Playing Reaches New Heights

Electronic Arts gave up on text games after their first bid, *Amnesia*, and since then their Interactive Stories Division has concentrated solely on role-playing games. The best one I've seen from them or anyone else this year is *Wasteland*, created by Interplay Productions. It's a post-nuclear war scenario that puts you in charge of seven Desert Rangers out to solve a series of mini-missions in the American Southwest. While doing so, you stumble across the game's main goal, which involves the Servants of the Mushroom Cloud, a "glow in the dark" cult whose temple is a former nuclear reactor in Las Vegas.

Characters aren't restricted by specific classes such as Thief or Fighter. At the outset, each of your four main characters gets a number of skill points equal to his

Continued on page 81

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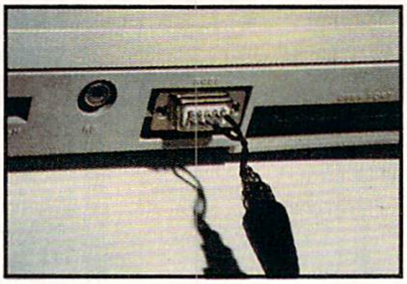
by John Iovine

Monitor Projects
for the Commodore 128

RGB to Composite Monitor

Here are a few short and simple monitor projects. For those of you who would like to use an inexpensive composite monochrome monitor and have the 80 columns inherent with the RGB, we'll construct an adaptor. The adaptor uses two lines off the RGB socket and feeds directly into your composite monitor to give you an 80-column screen. (See figure 1.)

The adaptor is a stand-alone project, but if you wish you can add a simple switch that will allow you to manually switch from the RGB to composite (graphics screens) whenever you like. You have to use the video out rather than the RF out. (See figure 2.) I have not found any standard plug that fits into this socket, so if you wish to use this circuit simply insert wires into the appropriate socket holes and tape into place.



80 Column to TV

Here's another circuit you might want to entertain using. (See figure 3.) This circuit uses the RGB adaptor to an RF Modulator (Radio Shack PN#15-1273) to a standard TV set. The resolution isn't perfect, but it is quite usable when you sharpen it up with the following program lines:

```
10 REM USE THIS PROG FOR 80
   COL TO TV
20 POKE DEC("DC00"),26
   :POKE DEC("D601"),2
30 POKE DEC("D600"),25
   :POKE DEC("D601"),0
```

I tested this circuit with a color TV; it's possible that a black and white TV may work better. Again you may have to adjust the TV to obtain the best picture possible.

Circuit Construction

The circuit (figure 1) is practically self explanatory. Solder short leads from the 9-pin plug to the phono socket. Use a video/audio cable from the phono socket to your monitor. You may have to adjust the intensity of your monitor, but you should find the setup quite satisfactory.

You can cover the adaptor wires with heat shrink tubing or a molded plastic cover, both of which are available at Radio Shack.

Note

I have received many letters requesting more info on the sound sampling circuit. This is to inform everyone that I'm designing a new and improved circuit that will be coming out shortly. Watch for this and other Projects in upcoming issues of *Commodore Magazine*.

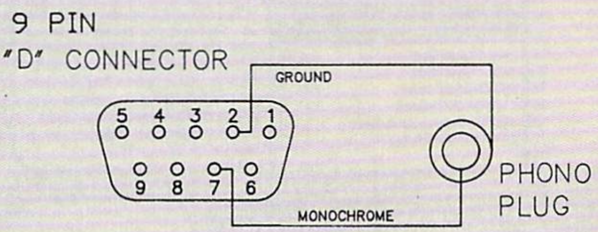


Figure 1
80 Column RGB to Composite

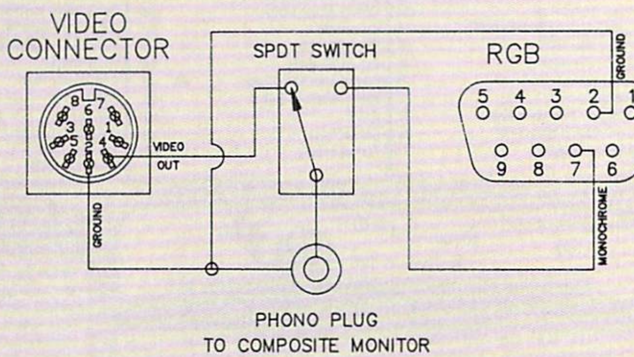


Figure 2
Switchable 80 Column and Composite to Composite

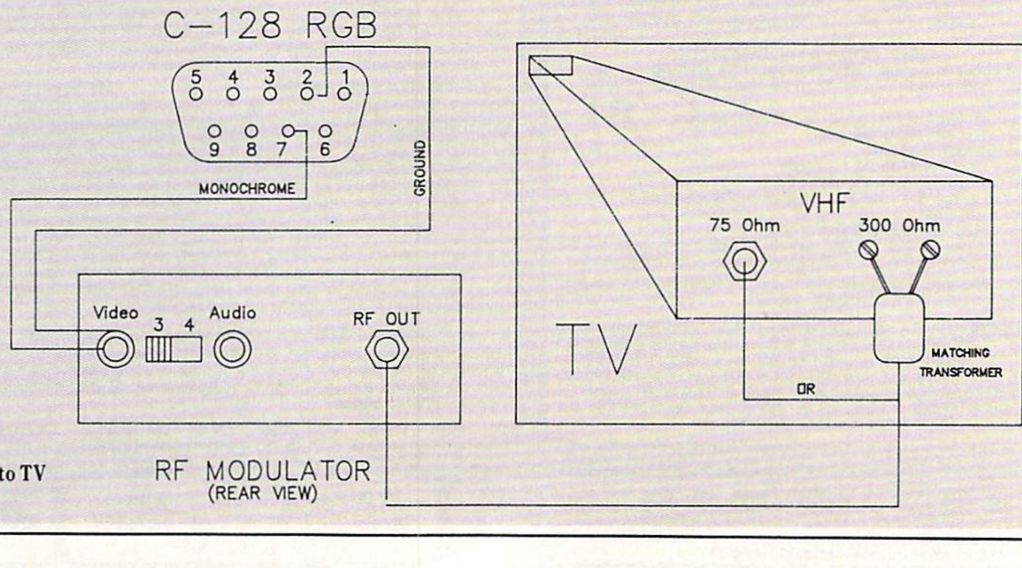


Figure 3
80 Column to TV

STEPHEN KOZACHYN

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DENNIS DEGNAN

Magic's Majesty in Adventure Games

by Russ Ceccola

Magic has always been an element of humanity. Man has always found a fascination in those things deemed beyond the capabilities of normal behavior and the laws of nature. Magic on computers is found in the realm of adventure games. From* Adventure *to* Zork, *all have at least a tiny bit of magic that the player can perform. An understanding of the magical abilities of your character and surroundings is necessary in order to do well in adventure games. Here then is my compendium of the magical lure contained in adventure games.

For prehistoric man, fire was magical because of the things it could do and the power it seemed to possess. For us today, it takes more than fire to make us believe in magic as a real force in the world. Magicians and illusionists of our times bring us to the brink of believing in magic; only the knowledge that their tricks are merely clever prestidigitation keeps us from falling over the edge.

Magic permeates all areas of our lives not just our thoughts. Because of its dependence on what cannot really happen, magic appears throughout the entertainment industry, from movies to books. Its effects can be seen in all their glory especially in computer games of all types. The computer, its graphics, sound and memory are the likely location to present magic to an audience that is able to suspend doubt for the duration of the game.

Magic on computers is predominantly found in the realm of adventure games. From *Adventure* to *Zork,* all have at least a tiny bit of magic that the player can perform. By playing these games, we develop a strong degree of creativity through attempting to discover uses for the magical abilities given to us in the game. A thorough understanding of these abilities is necessary in order to do well in adventure games. I searched carefully for the presence of magic in the games that I owned and found six ways in which magic is used in adventure games: spells, potions/powders, wands/staffs, worn magical items, magical words and miscellaneous appearances of magic.

Spells

There are many ways in which spells can be cast in adventure games. Their use extends from role-playing games through text adventures and depends largely upon the creativity of the person playing the game. A spell is usually written on a scroll or discovered in some other form of writing. A major part of using spells is discovering what they do—what their effect is on all things—both living and nonliving. In any case, there are two ways in which spells may be used: they may be cast on yourself or cast on other characters or things.

Before worrying about how to use spells, you first have to know where they come



DENISE FALESKI VITOLLO

from. In most role-playing games, spells are acquired with experience or the attainment of a character level. There are usually two types of spells: those of sorcerers or magicians and those priestly or clerical spells. The spells are different for both classes of spellcaster, but their method of accumulation is the same. As the characters "serve time" in the realm of the game, their magical ability, particularly the availability of spells, increases. So in role-playing games, more spells are acquired as a result of success in the rest of the adventure.

In other adventure games, spells are usually found. The spells may be written within books or other publications, written on scrolls or parchment or inscribed on other objects. To find out about the spell, the adventurer reads the description of the spell or discovers through close examination that a spell is contained in some object. Once the existence of the spell is confirmed, there are many directions in which the game can proceed, depending on the way the spell is used in the game and the proper use of the spell according to the game's author.

A spell is usually written on a scroll or discovered in some other form of writing.

Casting the spell on yourself gives a good indication of what it can do. In most cases, you will probably have to return to a previously saved position in the game after using the spell because you have probably lowered the number of "lives" left in the spell and the change it brings about in your alter ego in the game may be irreversible. Yet the spell's effect on yourself is a clear indicator of its place in a game. This action will tell you whether the spell is meant to be used on yourself or another character or object in the game.

Trying to successfully cast your newly-found spell on other characters, animals or inanimate objects in an adventure sheds even more light upon the correct use of a spell and at the very least allows for some interesting results. Through experimentation, you may find fun in what is otherwise a boring adventure game. Also, you may stumble upon the answer to a puzzle that has plagued you for a while by trying out a new spell. In most cases, the effect of the spell on other characters will be the same as on you. In the case of inanimate objects or animals/creatures, anything can happen—just experiment and see.

Casting or executing a spell may take place in any number of ways, from simply picking it up to throwing it. However, the predominant ways of casting spells are through reading them or invoking their name. Reading the spell from the place it is written takes immediate effect. The spell can automatically take effect on the object or character in your location in the game for which it was intended. Otherwise, reading the spell may cause an event to take place, like the arrival of night or the appearance of a force field around the character or party. Whether individual or group effects take place, reading the spell may make the object on which the spell is written disappear, so be sure you need a spell before you use it.

The other means of casting a spell is through invocation of its name. By simply saying the name of the spell, with or without other words that indicate for whom or what the spell is intended, its power is manifested. Again, you have to be sure that you want to use the spell before invoking it, for there may be a limit to the number of times that you can use it. If you know this limit, it helps matters a lot. If not, logical reasoning instead of haphazard guessing will help you to use the spell correctly.

As an example of the use of spells in adventure games, I can use *Enchanter,* one of the spell-based and heavily spell-populated *Enchanter Trilogy* games. There is a spell called Vaxum, the purpose of which is to make a hostile creature your friend. There is an adventurer who is angry with you in the mirrored halls of a castle in the game. After learning the spell, you may type in VAXUM BEING to change the attitude of the adventurer, thus increasing your score.

Potions and Powders

Potions, magical liquids, powders and magical substances are popular ways of containing a one-shot magical effect in a physical form. In most cases, the potion may be used or drunk only once, and the powder may be blown, poured or thrown only once. Both categories are favorites of magician-like characters in games. In describing them, games often refer to the wizard or magical character that created the potion or powder. The key to successful usage of a potion or powder is to know when to use it. Once this is found out, your inventory will be lightened when the substance is used.

Potions and liquids are tricky to deal with, because their effect may not be removable. In particular, after drinking a potion or pouring it on something, it may kill you or it may have no effect at all. At this point, you still don't know what the potion or liquid does, but you've already used it. Different from a spell, the use of which is usually revealed after reading it or finding out its name, potions and liquids have to be tried again and again to learn how to use them. Potions and magical liquids are usually contained in some kind of vial or bottle. Often, there may be a label on the container that indicates the usage. If not, you have to experiment.

The key to successful usage of a potion or powder is to know when to use it.

Drinking a potion may have different effects on different characters in a game. Particularly in role-playing games, the effect of the potion depends on the character and the qualities of that character. A potion or liquid may have an immediate effect, or you might have to wait a number of turns before the magic becomes potent. Pouring a potion or magical liquid almost always takes effect immediately. It may burn what it falls upon or transform the object or character into something else. The limits of the magic in the case of pouring are large because the liquid isn't consumed by a specific character, in which case the magic is limited to the character who consumed the liquid.

Gauntlet uses potions to destroy a large number of enemies at once. When a potion is found in the game's mazes, it is kept in the character's inventory until used. When used, it eliminates all of the enemies on one screen according to who uses the potion. If a wizard character uses the potion, its effect will be to clear every

enemy, whereas if an elf character activates the potion, only a percentage of the enemy is killed. *Gauntlet* is an example of a game where the abilities of the character directly determine the usefulness of the magic.

From *Adventure* to *Zork*, all have at least a tiny bit of magic that the player can perform.

Powders and solid magical substances are tougher to use in adventure games. Powders are mixed with other powders, liquids or other substances or are thrown at another character or thing to take effect. If the powder or solid is meant to be mixed, it is tougher to discover the correct usage. This is because of the various things with which the magical substances can be combined. There is usually some kind of clue that tells you how to mix the substances. In the case of throwing, trial and error takes over again. Throwing usually provides a wider range for the magic's effectiveness, but it also eliminates any chance of reusing the substance.

Feud is a fairly recent game that established a rather unique game system in that the goal is to create a certain number of potions and powders from various plants, herbs and other substances that you find throughout the game's geography. The interesting thing to note about the game is that the substances don't combine in only one way. You may mix them in any way, but the result may not be magical. The game is yet another example of how intelligent use of resources translates to strong magic.

Wands and Staffs

The magic wand has been the popular symbol of a magician since the first magicians began their practice. Used as a means of concentrating magical power in a stream that could be directed through the wand to the target for the magic, wands have been the source of various effects for magicians. In adventure games, wands, staffs and other such objects are used extensively in the way that real magicians claim they work. The major uses of wands and staffs are: pointing at the receiver of the magic and waving the wand or staff.

Pointing the wand at somebody or something may be all that is needed to perform magic. Usually, some kind of bolt or energy beam comes out of the end of the wand and enters the next object with which it comes in contact. Wands and staffs have all kinds of purposes, from bringing death or life to transforming the target into something else. Usually, unlike in real life, you can't point at somebody or something accidentally in an adventure game. More than likely, you'll have to knowingly decide via command to point your wand or staff somewhere.

Beyond Zork offers a good example of the use of a staff to kill an enemy. In your travels, you have stumbled upon a staff of annihilation. You've found out its purpose by having it examined by a wise woman. While traveling through the forest, you come across a vicious hellhound. With no other means of killing the creature, you point the staff at it, and it disappears into nothingness.

This example illustrates that the magic of the wand was called upon when needed. This is true of any magic you use and is a lesson to be learned. In the case of wands and staffs, you may only have a few chances to use the magic contained in the item. In *Beyond Zork,* you may only use the staffs or wands three times. After that, their magic is lost. To test your wands and staffs, as well as to find out what they do, repeatedly point them at objects to see how many times you can use them. By doing this, you will also find out the effect of the wand or staff in the game.

Waving a wand or staff has more of the mystique of classic magic involved than simply pointing the instrument. The tougher thing about waving a wand or staff is that you aren't directing the power toward any one place.

Wands and staffs have all kinds of purposes, from bringing death or life to transforming the target into something else.



Usually, the magic is directed toward anything that can respond to it in the location in which you are standing. This makes a puzzle easier or tougher, depending on the situation.

In *Adventure,* you have to cross a fissure to get a diamond. The only thing

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Best of Amiga Public Domain

by Graham Kinsey

Last month marked the first anniversary of the Amiga Public Domain column in *Commodore Magazine,* so here's a special article to commemorate the occasion. This month I am presenting awards for the best Amiga public domain programs reviewed in the past year.

Some of you will wonder why I'm doing a "Best of" column now, instead of at the end of the year. In addition to the fact that I started this column in the middle of last year, keep in mind that there are lead times involved with writing for a monthly magazine. By writing this article now, I'm much closer to the end of a calendar year than if I wrote this article for a December release. Also, the summer is a good time for such an article, since most people have some vacation time on their hands to catch up on the public domain gems they may have missed previously.

This column first appeared in July 1987, so I did some catching up in the first few installments and reviewed many programs that were actually released in 1986. I will not be considering programs written in 1986 for awards.

Here are this year's awards for the best Amiga Public Domain programs. I've awarded gold, silver and bronze medals in each category. I also give "honorable mention" awards in certain categories to one or more Amiga PD programs that didn't make the top three, but still deserve recognition. In a couple of categories I only gave medal awards to two programs, since I couldn't find any other programs that were truly worthy of a bronze medal award. Most of the software categories are self-explanatory.

As far as the demo categories are concerned, I separated the demos into "Normal" and "Custom" classifications. The Normal Demo category holds demos that were created with only one main commercial graphics package that is currently available; therefore demos are of the type that the average Amiga owner can hope to create some day. The Custom Demo category holds all the other demos that for one reason or another are out of the reach of the average Amiga user in terms of creating with what is currently available, at least without using several different graphic packages. And the other category lists programs that didn't have any competition, so there was no need to create a separate category.

I have included either a listing of the Fish disk number that each program resides on (if this is the case) or the file number of the program in the file libraries in PeopleLink's AmigaZone.

There are three programs that don't have any reference at all: The Final List should already be located on practically every local Amiga BBS in the country. The other two programs, Zeus and DemoReel1 are huge and therefore can't practically be stored as a downloadable file (i.e., you have to get a copy of the disk itself). A friend or User Group will have to be your source for these.

Games

Gold Medal: Pacman87 by Steve Jacobs and Jim Boyd (AmigaZone file #7774; Shareware: $10)

Pacman87 deserves applause as a quality PD arcade game which has very good graphics and sound. It is not only fast and challenging, but it also has some originality. The biggest reason why it receives the gold medal is not so much what it does, but when it came out. Although there were quite a few games out for the Amiga from the start, before mid 1987 the number of quality arcade games could be counted your fingers. Pacman87 gave Amiga users a good PD arcade game to play while they waited for the Christmas flood of arcade games for the Amiga 500 to start rolling in.

Silver Medal: Larn by Edmund Burnette (Fish 63)

Despite the release of commercial fantasy role-playing adventure games like *Rouge* and *Ultima III,* the D&D-style game that Amiga users were most enthralled with was Hack, a port of the famous adventure game from the Unix environment that caused people to consume free time as fast as sloppy multitasking programs consume memory.

But Hack had some less than desirable features. The most annoying feature was that your character had to constantly stuff food in his face. Unlike the real world, Hack characters had a very short life span (like 20 minutes) if they didn't eat. This forced your character to eat the likes of dead rats, orcs and kobolds. (Can you imagine a knight dining on a foul, evil creature after killing it in battle? I didn't think so!) Hack also had no real "safety zone," where your character could escape the dungeon to take a breather and gather his wits. Equally frustrating was that there was no place to exit to automatically find shops, banks and other businesses an adventurer needs in order to better attain his long-term goal.

These are some of the reasons why when the adventure game Larn (also ported from the Unix world) first appeared for the Amiga, a lot of barbarians who just happened to own Amigas dragged out the ol' drinking horn to celebrate the occasion!

Although Larn was of the same fantasy role-playing adventure game genre, it differed in many ways from Hack. First of all, in addition to Larn's *two* dungeons (a



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standard dungeon and a very deadly one which is designed especially for those Larn characters who are quickly approaching demi-god status) Larn has a surface world. On the surface world is a bank, a college, a couple of shops and more. And naturally your character starts his adventuring life here, with a little time to prepare before entering his first life-or-death battle. A Larn character does not have to worry about eating. He does have a time limit to his adventure, so he can't exactly decide to take the day off, but at least you don't have to constantly worry about where your character will get his next meal in order to stay alive.

Pacman87 gave Amiga users a good PD arcade game to play while they waited for the flood of games for the Amiga 500 to start rolling in.

Probably the best thing about Larn is that (unlike Hack), most mere mortals stand a decent chance of actually winning the game. So if you're a real D&D addict and are looking for an adventure game that is truly addicting yet is not sadistic, Larn is your cup of tea. And if you finish it a bit too quickly for your tastes, you still can enjoy Hack, the game best known for devouring summer vacations.

Bronze Medal: GravAttack by Scott Peterson (AmigaZone file #9205; Shareware: $10)



If you want a good Amiga shareware arcade game that doesn't remind you of anything you've seen before, check out GravAttack which is in a world of its own. At first it may remind you of another game in the Lunar Lander genre, but it certainly isn't. Although you do have to pilot a ship around varying terrain, that's about the only similarity to Lunar Lander-type games.

The goal of each level (there are 17 levels, and after many hours of playing I didn't get past level seven) is to catch six keys that are spinning in different locations while avoiding most terrain features as well as the many laser cannons that are always firing. Although gravity is indeed a factor, is it not a constant. It can vary from zero to a very steep acceleration, keeping you on your toes. There are many objects to navigate around, but not all will destroy your ship if you touch them. Certain planets and other terrain objects have the consistency of rubber, causing your ship to harmlessly bounce off the surface. Like Lunar Lander-type games you do have a limited fuel supply. But in GravAttack earning fuel, points and extra ships is complicated. There are many different bonuses (each of which has its own unique set of conditions which must be met) which can be earned on each level. Some bonuses are "universal" and can be earned on any level, while others are only active on a certain level.

The graphics and particularly the digitized sounds help to keep the game interesting. Although the pace isn't quite as furious as PacMan87, GravAttack is just as challenging an arcade game.

Honorable Mention: Missile Defense by Glen Merriman (Fish 50)

Missile Defense certainly doesn't sport the fancy graphics of PacMan87 nor the complexity of GravAttack, but it blows away both games in one aspect—speed. Missile Defense is programed in 100 percent assembly language, and as a result it is blindly fast. While you usually wouldn't want to multitask with most games, you may find you have to run other programs with Missile Defense in order to slow it down enough to give yourself a fighting chance. Missile Defense also sports great digitized sounds, including its infamous opening scream which is guaranteed to distract you enough to make you do terribly in your first couple of games!

Terminal Programs

Gold Medal: AMIC PD TERM by David Salas (AmigaZone file #9296)

AMIC PD TERM has become the default PD general purpose terminal program for Amiga power users. AMIC PD TERM was the first PD terminal program to bring many important features to the

Hall of Fame

There are two very important public domain programs that deserve special recognition despite their age. So let me introduce the Amiga Public Domain Hall of Fame with its first two inductees. The Amiga PD Hall of Fame will permanently enshrine programs that have withstood the test of time to prove to be not just great PD programs, but in some cases prime examples of what the Amiga can do. These programs have single-handedly brought to light new features or possibilities to the Amiga community that were previously non-existent. Here are the first two entries into the Amiga PD Hall of Fame:

ASDG-RRD by Perry Kivolowitz and ASDG Inc. (Fish 58; Shareware: $10)

We all know that the Amiga, being a multitasking machine, is susceptible to a poorly written program trashing the entire multitasking environment. Especially back in 1986, during the days of Kickstart/Workbench version 1.1, Guru Meditations appeared regularly for most Amiga users. While Commodore was still working on Kickstart/Workbench 1.2, users managed as best they could.

The ASDG-RRD was the first Amiga PD program (actually more like the first Amiga program—PD or commercial), that tried to help users cope with Guru Meditations. It didn't stop the Guru, but it did allow people to recover much more quickly and get back to whatever they were using before the crash. It also allowed people to greatly reduce the chance of losing work to the Guru. As long as one made a habit of saving projects to the RRD frequently (which unlike saving to a floppy disk was very quick and therefore relatively painless), there was no need to worry about losing the latest revisions on a project due to a Guru.

The ASDG-RRD also increased awareness concerning using memory as a disk device. Of course, Commodore did have a RAMdisk device present in Workbench (The 1.1 version of the RAMdisk had bugs, but at least it worked), but it was barely mentioned in the documentation.

Amiga telecommunicating community.

AMIC PD TERM introduced autodial-

AMIC PD TERM has become the default PD general purpose terminal program for Amiga power users.

ing that was actually convenient to use. AMIC PD TERM was the first to bring an advanced protocol, in this case Ymodem, to Amiga users. The program also pioneered the use of gadgets is a serious way, including the introduction of a Sidebar, in which commands can be activated by just clicking on a gadget.

It also introduced a separate configuration file that allowed the user to set many parameters before the program was actually loaded in. One of the parameters that could be defined was the number of bit planes AMIC PD TERM would use for its display. This allowed those who didn't care about many fancy colors in the display to cut down the number of bit planes allocated in order to speed up the display (as well as to save memory for those who can't afford to waste it). The configuration file also allowed you to assign paths to the directories which AMIC PD TERM would



upload from and download to.

Although AMIC PD TERM still doesn't fully support ANSI screen commands, at least it does allow use of alternate character sets, namely the IBM character set. This is very important since although most MS-DOS-based BBS programs allow the caller to disable any ANSI commands, most will not allow the caller to disable the IBM graphic characters from being displayed.

Since the parent company behind AMIC PD TERM, Amic Development, has now moved the program into the commercial field, we will no longer see any new versions (the last PD version being version .58E) to AMIC PD TERM in the public domain. Nevertheless, AMIC still sets the standard for a full-featured PD general-purpose terminal program for other programmers to meet or exceed.

Silver Medal: **Communicator** by Dan James (Fish 71)

There are two reasons why I am giving an award to Communicator. The first and more obvious reason is that in early 1987,

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Since many people bought expansion memory in 1986 and early 1987, but very few owned a hard drive yet, knowing how to use a RAMdisk made life a lot easier.

The ASDG-RRD stills hold the title of Amiga shareware program with the largest number of registered users, which confirms its widespread use by Amiga users everywhere, as well as its right to be enshrined in the Amiga PD Hall of Fame.

Juggler by Eric Graham (Fish 97)

Although the Amiga can be used for nearly any purpose, clearly it is still primarily thought of as a graphics machine. And when it comes to demoing the Amiga to a new user, most Amiga users aren't exactly waiting with anticipation to show to their friends the latest spreadsheet. (I'll show you some great business programs later, but *first*. . .!) And until December 1986, I'm sure most of you were dragging out the world-famous Boing! demo while cranking your stereo up (you *do* have your Amiga hooked up to your stereo, right?).

But in December 1986 the Boing! demo was forever replaced by a new animation from a newcomer to the Amiga PD scene, Eric Graham. Wow, what a way to enter the Amiga PD arena! In that month Amiga users were not only dazzled by a "round" little figure who probably would fit right in with a circus show, but we were also introduced to two new concepts.

First of all, Juggler was the first animation to use the Amiga's Hold and Modify (HAM) graphics mode. Although the majority of Amiga users at the time had already been introduced to HAM graphics (primarily via the first demo HAM pictures produced with the yet unreleased HAM digitizer DigiView and Commodore's first and only arcade game for the Amiga, *Mindwalker*), HAM graphics and animations were basically considered mutually exclusive until Juggler appeared.

Juggler also introduced Amiga users to producing graphic images via ray-tracing. The vast majority of computer users at the time had never heard of ray-tracing. (Until the Amiga came along, ray-tracing was only practical on graphics workstations from the likes of Sun and Apollo.) Juggler gave an astonishing example of how to exploit the potential of HAM mode via ray-tracing.

Of course, what may be more important (at least in terms of Amiga CPU sales) was the Juggler's impact on the general computer world. Juggler has been shown on computer shows and has even been seen on no less than MTV (in a Tom Petty video). If imitation is the sincerest form of flattery, then Juggler has earned deep respect from those who use other computers. But unlike the Boing! demo, which wasn't totally impossible for other computers to imitate (at least in the graphics department), Juggler jumped light-years ahead of what most computers can output with their hardware.

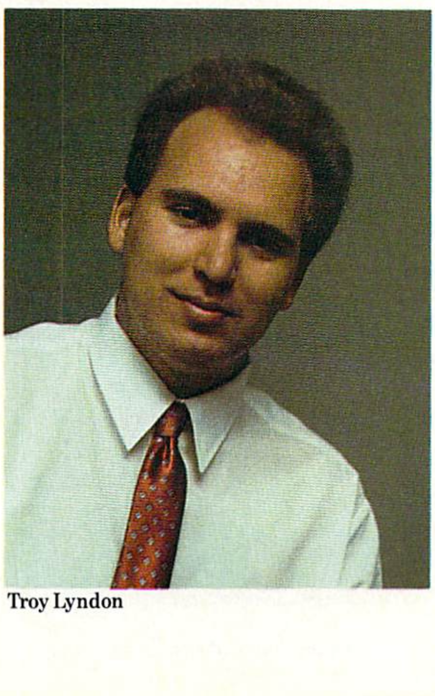
Juggler will always be remembered dearly in the hearts of Amigans everywhere, even into the 1990s when Amiga hackers with money will be having fun using new operating systems on their 680XX-based Amiga and Amiga arcade games using HalfBrite and HAM modes are commonplace. I don't think there's any question that *this* demo belongs in the Amiga PD Hall of Fame!


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Troy Lyndon: Defender of the Commodore Crown

by John Jermaine

The microcomputer software industry has undergone an interesting evolution. It started out as a small collection of "spare bedroom" operations, which later evolved into multi-million dollar international corporations. One Commodore 64 game programmer has seen these changes take place while actively contributing to the growth of the industry. You might recognize some of the game titles he has worked on:* Snokie, Mr. Do, Two-on-Two Basketball, Star Rank Boxing, Howard The Duck, Defender of The Crown, Speed Rumbler, Hat Trick, *etc. His name, however is probably unknown. Here is the story of Troy Lyndon.



Troy Lyndon

Lyndon is a 23-year-old southern Californian. He's been married to his wife Carol for 2½ years, and they are the proud parents a seven-month-old son. Troy's interests include robotics, radio control and playing the keyboard (he once performed with a local band called Third Planet).

Why does Troy Lyndon continue to develop Commodore 64 software? The answer is really very simple. The 64 is his favorite home computer, and he thinks it's going to be around for a long time. If you're interested in arcade games and sports simulation software, read on.

John Jermaine: How did you become interested in computers?

Troy Lyndon: Back in 1978, my father brought home a Radio Shack TRS-80 Model One computer. I was 13 years old at the time and totally intrigued with my new toy. After all, there weren't many microcomputers in private homes back then. I quickly began programming in BASIC and mastered the language a couple of years later.

Several friends of mine at the time convinced me to start working with Assembly Language. They claimed it really wasn't very hard to learn. My father, on the other hand, was against the whole idea. He knew Assembly Language was a pain the butt for most adults (and I was still just a teenager). Dad also feared I'd be racking my brain and might lose interest in programming altogether. Fortunately, that was not the case. I still wonder if he was genuinely concerned or simply challenging me to learn Assembly Language on my own.

By 1982 David Jennings (one of my local computer friends) and I were busy writing a collection of BASIC programming aids (in Z-80 Assembly Language).

Jermaine: What inspired you to become a professional game programmer?

Lyndon: After co-developing utilities for a while, I wanted to do something totally different on my own. This was also the time when the *Galaxian* coin-op machine came out. It quickly swallowed a number of my quarters and got me to thinking there might be a market for microcomputer action games. *Space Voyager,* my first game project, took approximately seven months to develop. I really learned a lot from that experience, because it was my first serious attempt to do Assembly Language programming (by myself). After *Space Voyager* was completed, I wrote *Great Wave* in 30 days, and *Space Quest* (my third game) required another 60 days of work. It's interesting to note that all three programs shared the same source code, but every game was completely different from the others.

I eventually sold these programs to *CLoad Magazine,* but before the deal was made I submitted them to a company called Funsoft (now known as MainStay). They were in the process of leaving the TRS-80 software market, so Tom Nalevanko (the president of the company) asked me to develop a Commodore 64 game. I told him I couldn't do it, because I had never worked with 6502 Assembly Language before, and I didn't own a Commodore 64 to do it on. After checking around, I managed to locate another friend (Scott Maxwell) who had the computer and offered to co-author a 64 conversion with me. Scott actually did most of the *Time Runner* programming, while I helped him along and learned from the experience. A short time later, I created my own 64 conversions of *Snokie* and *Flak* for Funsoft.

While all of this was going on, two important people came into my life. Yves Lempereur wrote the Atari 800 version of *Snokie,* an action graphic game featuring

a cute little penguin moving across a treacherous ice flow. As I generated the Commodore version of the game, he helped me solve a number of difficult problems. Every now and then I still ask Yves for advice, because he's a good friend and an excellent programmer. I also met John Cutter during this period of time (even though he didn't work at Funsoft). John taught me quite a bit about game designing in general, which came in handy when we worked together at Gamestar.

Just when things seemed to be going right, my boss gave me some terrible news: Funsoft was going to support the Macintosh computer. This meant they wouldn't have anything for me to do. After thinking things over, I negotiated a deal (with Tom Nalevanko) to rent my old office. This arrangement gave me a decent place to program, even though I never developed material for Funsoft again.

Jermaine: How did you become involved with Datasoft?

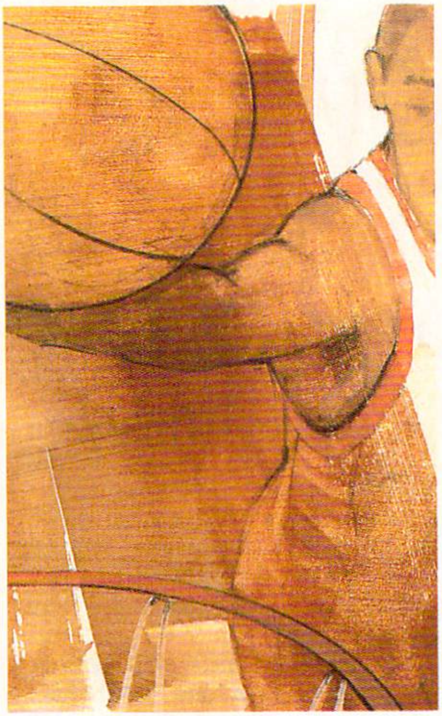
We will always do games as long as loyal customers enjoy entertainment products.

Lyndon: A few years back, John Garcia (the man in charge of Datasoft's development team back then) offered me a full-time position. At the time I couldn't accept the job, since I was still attending school. Once I was free, I hit him up for a job.

Jermaine: Tell me about your Datasoft career.

Lyndon: First of all, I never actually became a salaried employee of Datasoft. A contract was drawn up and had to be signed before I officially started a project. My first assignment consisted of finishing up their *Lost Tomb* program. Believe it or not, I corrected over 50 "bugs" (in the game) during a two-week period. This feat apparently impressed somebody at the company, because they quickly signed me up to program the game *Mr. Do* (the day I completed *Lost Tomb*).

Someone recently asked me if I could extract source code from the average coin-op arcade machine and use that material to produce a 64 conversion of the game. Yes, it is physically possible to do such a thing, but it usually isn't the fastest way of getting the job done. In *Mr. Do,* for example, we disassembled the arcade game



code (to observe how the bad guys attack you on the screen). We called this enemy strategy the "shortest path routine," because the bad guys are always taking the shortest path to your present location. We carefully examined that portion of the code, figured out how it worked, and rewrote the same routine (in our own way) on the computer. By the way, I was very pleased with the end result. We occasionally write graphic conversion utilities which allow us to use some of the coin-op artwork. Even though this can be done, approximately 75% of our graphics are still generated from scratch.

Mr. Do also had the ability to move up to 20 objects around the screen at any given moment. It was one of the first home computer games featuring character animation in conjunction with sprite animation. This is no big deal today, but four years ago that technology was really something special. When all was said and done, it took me approximately six months to generate the *Mr. Do* arcade game conversion. Incidentally, *Mr. Do* was my final Datasoft project.

Jermaine: What happened after that?

Lyndon: Several days went by before John Cutter introduced me to Scott Orr (president of Gamestar). He seemed to be a great guy, who had gathered together an incredible group of talented individuals. These people included Ed Ringler and John Cutter. Ed Ringler was very ambitious, and he shared his enthusiasm with the people around him. John Cutter was the mellow, level-headed member of the team. He was a good programmer who did a variety of things very well (game design was his specialty).

I really wanted to become a part of this group and joined its ranks when a programmer left the company. By the way, the Gamestar working environment was totally different from anything I'd experienced before. I was dealing with professional people who demanded perfection and wanted the game out tomorrow, so to speak. They also gave me impractical deadlines to meet, forcing me to do quality work at a faster rate of speed. I didn't know it at the time, but every experience I had at Gamestar prepared me for running my own company.

Jermaine: Can you give me some information about *Star Rank Boxing*?

Lyndon: *Star Rank Boxing* contains an unusual opponent strategy you won't find in other games. Someone read a magazine article where 1,000 people were given a particular pattern of numbers. A moment later, they were asked to repeat the sequence to the person conducting the test. After giving each person the same set of tests, a significant percentage of the group couldn't repeat one or two of the sequences. It was automatically assumed these number patterns were the most unpredictable, so we incorporated them into the computer logic of the boxing opponent. Scott Orr, John Cutter and myself spent many hours perfecting this component of the game, and I have to say it operates very well. *Star Rank Boxing* is still a big seller, even though it's been on the market for about three years. (It's now marketed under Activision's Solid Gold label.)

Before we go any farther, I'd like to discuss the difference between artificial and programmed intelligence. Programmers are constantly bragging about the artifi-



Street Fighter, **Troy's all-time favorite game.**



cial intelligence in their games, when most of the time they should be calling it "programmed" intelligence. If the computer has true "artificial intelligence," it learns indefinitely by itself forever. A complex testing operation of this nature also requires a vast amount of memory. "Programmed intelligence" simulates human reasoning by performing a task in a logical manner. This pattern of intelligence is generated from a flow chart of if-then-else statements. If the baseball player catches the ball, then he throws it to one of his teammates. The computer reasons in much the same manner. It can't think about how to react to a given situation, unless that factor was programmed in.

Jermaine: Tell me about *Two-on-Two Basketball.*

Lyndon: *Two-on-Two Basketball* was a fun collaboration with Scott Orr and John Cutter (even though we argued about it most of the time). That high-pressure environment was actually beneficial, because we got the job done in five months. The sprite animation data originally occupied 40K of memory. We were eventually able to compress that code to approximately 24K. One of the biggest problems we faced was getting the joystick to operate correctly. If I had it to do over again, I'd definitely improve the computer logic of the game. In certain situations, your opponent or teammate doesn't act as smart as he should.

Jermaine: What are the most difficult sports to simulate in a microcomputer environment?

Lyndon: Now I don't know this for a fact, but football and soccer would probably be two of the toughest ones. Both of these sports contain a large number of players, giving the programmer a complex set of variables to work with. A means of manipulating those players correctly can also present some interesting problems.

Jermaine: Why did Gamestar develop *Howard The Duck,* a program that had nothing to do with sports?

Lyndon: That's a good question. I guess you could say we became obsessed with the idea of doing something spectacular on the computer. George Lucas was the Executive Producer and the directors were involved in the making of *American Graffiti.* We assumed *Howard* would be a big hit based on the people involved. After all,

The support of my friends and my belief in myself finally convinced me I could get any job I really wanted.

Lucas had created box office giants like *Star Wars, Raiders of The Lost Ark,* etc., and his track record was impeccable. I personally wanted to do the program, because I thought it would be our claim to fame. Scott Orr also liked the idea, so he worked out the details to do the game for Activision.

It's interesting to note that none of us actually saw the movie until about a month before the game was completed. Lucasfilm Ltd. provided a series of slides from the film, which were used to generate the graphics of the program. They also told us the basic story of the movie. After talking things over, we decided to make our program a direct sequel to the film. We didn't think the movie plot would be well suited for a game. Even though I didn't make many initial decisions, when it came to designing the product, I still feel somewhat responsible for this ill-fated project. By the way, we had to develop *Howard The Duck* during a four-month cycle (when most of our game projects require a minimum of six to nine month's work). In short, everything was done in a hurry, and I believe the game suffered because of this tight scheduling.

Jermaine: A moment ago you mentioned Activision. What is the relationship between Gamestar and Activision?

Lyndon: When I first came to Gamestar, it was independently owned and located in Santa Barbara, California. In January 1986, Activision purchased Gamestar. After the merger took place, everything was fine for about a year. In December of 1986, Activision announced it was closing down the Santa Barbara office and moving Gamestar to its corporate headquarters. Harold Seeley and I remained behind, because we didn't want to relocate to northern California. Keith and Scott Orr were offered positions at Activision, where they continued to carry on the Gamestar tradition. On January 1, 1987, I was once again without a job.

Jermaine: When and how was Lyndon and Associates founded?

Lyndon: Believe it or not, the company was almost never founded. I wasn't sure what I wanted to do after Gamestar left the area, so I went to the January Consumer Electronics Show (in Las Vegas) to look for new opportunities. It's funny, but most of the people I talked with thought I should be doing my own thing. After thinking things over, I suddenly realized I'd never truly been out of a job. The support of my friends and my belief in myself finally convinced me I could get any job I really wanted to do.

Selecting a good name for my company was another problem altogether. One of the first titles I considered was Grey Matter (like the material in the brain). I also liked the name Discovery Software, but unfortunately that title was already taken. When all was said and done, I chose Lyndon and Associates because it was simple and to the point. The company was founded in January of 1987 (and incorporated in May of 1987). In the beginning I was by myself, but other people gradually came into the fold. We recently changed the name of the company to Pacific Dataworks International. I felt the title best described more of what we do and less of who we are.

Jermaine: Can you tell me more about Pacific Dataworks International and your plans for the future.

Lyndon: Pacific Dataworks International is currently a small, prospering business about to take the entertainment development industry by storm. When I started the company out of my condo in January 1987, we invaded two of three bedrooms. My wife thought it would be a good time to move into office space.

Since that time we have expanded to 12 employees and are growing slowly but surely. Our large in-house and very extensive out-of-house staff, have catapulted us to being one of the largest entertainment development companies in the country.

I think the most contributing factors to our success have been, first, our commitment to quality and second, the simple principal that all people want the same

Continued on page 100

by Mark Jordan

BeckerBASIC

At last I've had a chance to spend time with BeckerBASIC, the first BASIC language available for GEOS. The best way to check out a car is to drive it, and the best way to check out a programming language is to write a program using it. Which is exactly what I did. Now come along for a scenic tour with me, your guide, telling all.

Computer: Commodore 64
Publisher: Abacus Software
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Grand Rapids, MI 49508
Price: $49.95

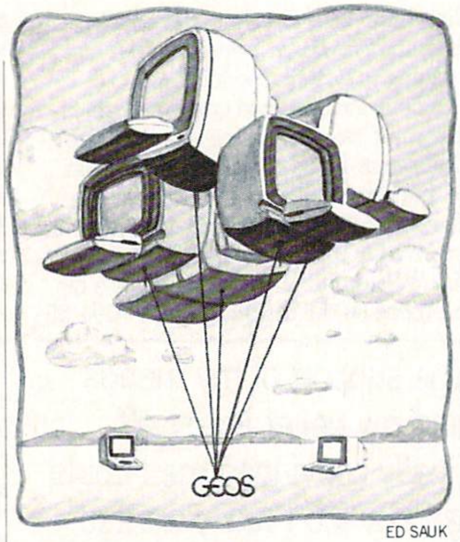
Getting Used to BeckerBASIC

BeckerBASIC takes some getting used to, particularly if you've done much programming in the Commodore 64 or 128 environment. The biggest adjustment you're going to have to make is that no longer can you simply type out some program lines, type RUN, and see what happens. You now will have to do your typing in one mode—called the Input System—and do your testing in another—the Testing System.

To make matters even more confusing, if you want to be able to simply double-click your program icons just like you do with other GEOS applications, you'll need to convert your program using a program that comes with BeckerBASIC.

None of this is particularly hard to do, just different. And, I regret to add, inconvenient. It takes about nine seconds to switch from input to testing, not much when compared to gigantic time events such as glacial periods and years between Chicago Cubs pennants, but quite significant in the program development time frame. If you're like me, when you find a bug you want to type RUN and verify its death. And if you're like me it usually takes about 17 "Aha, this time I've got it"s before the obituary can be written. Now 17 times 18 equals 306 seconds or five minutes of just sitting staring at the monitor. Multiply that times 74 million (because that's how many bugs are in the average program during development), and you're getting up there with glacial periods.

Why did the developers of BeckerBASIC strap us with this three-mode system? Because what BeckerBASIC does is a whopping big amount of work for a 64K



ED SAUK

computer. It keeps GEOS in memory. It has to keep itself in memory. And it needs to keep your program in memory.

To juggle these three balls you need to do some sleight of hand. BeckerBASIC's trick is simply to put only the elements of the system that are germane to the task at hand into memory. Thus, to input your program, only those BeckerBASIC commands that are related to screen editing and program development are used, leaving you with enough space to create a fairly big program.

How much is that? If you don't use the hi-res screen you'll have about 24K for development and another 20K of memory scattered about. If you decide to use the hi-res screen (or drop-down menus GEOS-style) you can deduct 8K from that.

The inconvenience is simply a price that has to be paid to get a first-class high-level language for GEOS. Is it worth it?

Yep. BeckerBASIC gives you a whopping big 273 commands to work with. And many of these are as up-to-date as you can get. Lots of programming aids are available, structured programming is supported, sound and graphics commands are easy and extensive, a whole gob of disk commands are at your disposal, better methods of input and output are included . . . it's a true BASIC programmer's bonanza. My favorite feature is the ability to use labels instead of line numbers. Now instead of GOTO 1000 you can type GOTO "SPRITES" or whatever.

The commands are very easy to learn, particularly if you're coming over from BASIC 7.0 on the 128. However, you will do a lot of page-flipping as you go on your maiden voyage with BeckerBASIC. (Interesting side note: the program allows you to change the names of any and all commands to suit your preference. I will not do so in this or future columns, because it would create confusion. But it is a nice feature.)

Oh, by the way, although it has been advertised as a GEOS utility, BeckerBASIC stands solid on its own as an extended BASIC. You don't *have* to have GEOS to use it.

Diving In

Well, we're not quite ready to dive in yet. First, a word about the actual process of typing programs in with BeckerBASIC. To start, double-click the INPUT SYSTEM icon. Then edit exactly the same as if you were typing in a Commodore 64 program.

Save it before running it (this is crucial). To run it, press the COMMODORE key and the CTRL key simultaneously then follow the prompts.

When you're sure you've got it up and running properly, return to the Input mode and save it again, and then go back to the GEOS desktop, double-click the CONVERTER icon, and follow the prompts. This will make your program "click-able."

You can also distribute your program to folks who don't happen to have BeckerBASIC. You simply must include the Run-Only-System module on the same disk. This is legal. However, giving away other modules is not.

The program that we will cover is a useful one to type in. It will show you the 45 fill patterns that are available for graphics as well as demonstrate the use of drop-down menus. However, if you're not the type-in type or you don't own BeckerBASIC yet, just read the article. It should give you an idea of what BeckerBASIC is all about.

Now, Diving In

—10 GEOSON:HRDEL

GEOSON turns on the hi-res mode. HRDEL then clears the hi-res screen.

— 20 DLOADM "FILL.MEN"

This line loads in the data for our drop-down menu. To create this data you need to use a program on the BeckerBASIC disk called "Drop-down Menu Construction Set." See the sidebar for an explanation of how to use it (You *must* read the sidebar and type in the info there to get this demo to work.) I named my drop-

down menu "fill.men".

BeckerBASIC has two main types of loads: one is for data, the other for programs. The "M" in DLOADM indicates data is being loaded.

As mentioned above, there are many other disk options like the ability to load and run a program (DRLOAD), ability to save selected lines, and many more.

— 30 GD=14:PT=5

These two variables are for color selection. GD will be for background color, PT for foreground.

— 40 HRPRINT 84,7,"PRESS BUTTON FOR MENU OPTIONS"+CHR$(0)

This is your text command for hi-res printing. The first number (84) is the horizontal starting pixel, and the second (7) is the vertical. Please note: If you use a vertical starting point less than six the text won't print. This is not documented in the manual. Also note: a CHR$(0) must terminate *all* hi-res text commands. This is documented.

— 50 FORT=0TO4:FORI=0TO8

These two FOR/NEXT loops are going to print five rows (the T loop) of boxes, nine boxes to a row (the I loop). Nothing new here.

— 60 : HRBOX I*30+26,T*36+20, I*30+51,T*36+41,T*9+I

Don't let this one scare you. All those numbers are merely to get our graphic patterns in the proper position on the screen. HRBOX means hi-res box. You'll discover this isn't exactly a box. It's a fill pattern. The last number on this long string—T*9+I—tells the computer which fill pattern to use (there are 45 choices). Therefore, the first time through the loop

Using the Drop-Down Menu Construction Set

It isn't difficult at all to create drop-down menus with BeckerBASIC. Simply double-click the icon from your GEOS desktop. By following the prompts you should be able to design your menus quickly.

Still, a few tips are in order:

1. The manual never states how wide (in terms of pixels) each menu item is. They are 14 pixels each. Therefore, if you are going to use four items in your menu, you'll need a bottom Y value that is 56 pixels greater than your top Y value.

2. A quirk you should be aware of occurs when you type in the text for your menu items. If you have any items more than 10 characters in length when you type the next item, the typing area only clears out the first ten characters. Use the spacebar to clear them out.

3. The program allows you to test your menus. That's good. But if you've designed any sub-menus, you may want to get back to the main menu after you've clicked into a sub-menu. To exit the sub-menu safely, just move the pointer up.

4. Another thing to beware of: after you're done building your menus, you'll be given an opportunity to review the data or to save it. If you want to recall the numbers and text you've input, don't choose save. Instead, go back through the process and write down your data.

Why would you want to do that? Well, if you want to publish a program in a magazine you'll need to tell your user what data he needs to type in when using the menu construction set. For this article, input the following as the prompts ask for them:

24000,4,1,10,0,95,56

Foreground color,Background color, Invert screen, Quit

N,N,N,Y,2,1,45,46,100,74

Break,Desktop

A N N O U N C I N G



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we will get pattern 0 because T will equal 0 and so will I (check line 50).

— 70 : HRFRAME I*30+26,T*36+20, I*30+51,T*36+41,255

Look familiar? It should. It's almost exactly the same as line 60 with these two exceptions: 1) The command is now HRFRAME instead of HRBOX. This will frame our boxes. And the last number—255—will cause the frame to print with a solid line. Had we chosen any other number, we would have created a dotted (or dashed) frame.

For example, the number 170 in binary is 10101010. If we used 170 for the last number on the frame command we'd have gotten a dotted frame. This technique also applies to drawing lines.

— 80 HRPRINT I*30+30,T*36+49, STR$(T*9+I)+CHR$(0)

Another hi-res text line. What it does is place the number of the pattern we are looking at (T*9+I) beneath each filled frame.

— 90 NEXT:NEXT

'Nough said.

— 100 "MENU"

Ah, here's one of those beautiful labels I was talking about. It must be enclosed in quotes, but it doesn't have to be on a line by itself. If we ever decide to GOTO 100 we will just make it GOTO "MENU". This is better: This is the beginning of the main program loop.

— 110 WAITKEYA:GETA$

Commodore 64 programmers will be happy for some of the improved input commands. Commodore 128 users may wish they had some of their 7.0 specialties (like GETKEY). At any rate, the first command causes the computer to wait until a key is pressed, and the second then takes whatever was pressed and calls it A$.

— 120 PDMENU 24095:HRGDCOL GD: HRPTCOL PT

The PDMENU command transfers control away from us and into GEOS. Your mouse pointer comes alive and lets you point and click just as if it were a real GEOS application. You must follow PDMENU with the address of your drop-down menu but that's no sweat . . . when you use the drop-down menu construction set it'll tell you the number you need here.

I added the HRGDCOL (background color) and HRPTCOL (foreground color) because during each menu call, the colors get switched to the Desktop colors. There may be a way around this, but I haven't discovered it yet.

— 130 M1=MENUCODE(0):M2= MENUCODE(1)

After you return from a menu call, you'll want to know what was selected. MENUCODE(0) tells you the main menu selection. MENUCODE(1) tells the sub-menu selection. For example, if the user selected the second item on the main menu and the third item of a sub-menu, M1 would equal 2 after line 130 executes and M2 would equal 3.

— 140 IF M1=4 THEN POPIF: GOTO "DESK":ENDIF

Whoa! Is this an IF/THEN statement? Yes. It's a typical structured IF/THEN statement, and I don't mind telling you that I hate them. Give me the old IF M1=4 THEN XXX any day. BeckerBASIC doesn't allow you to do this. You cannot follow THEN with a GOTO (or a line number) unless you use the POPIF statement. Don't ask me why; I'm sure they have their reasons.

Also, all IF/THENs must be concluded with an ENDIF, another source of irritation to me. It's true, this can be quite handy because you can include several lines between the IF/THEN and the ENDIF. But why not allow the simple one-line IF/THEN for those hundreds of cases when that's all you want to do?

Oh well.

—150 ON M2 GOSUB "FOREGROUND", "BACKGROUND", "INVERT"

So line 140 makes me mad. Line 150 makes me very happy. This is the up side of structured programming: labels. It isn't hard to guess that if M2 equals 1 (item 1 was selected) we'll go to a subroutine having to do with foreground colors. And if M2 equals 2 then it's off to a "BACKGROUND" subroutine.

By the way, if you, like many, don't understand how to use the ON/GOSUB statement, it's definitely worth poring over your user's manual, especially if you plan to do much programming with menus.

— 160 GOTO "MENU"

Without labels this would've read GOTO 100. This line completes the main program loop.

Maybe now's a good time to mention that the renumbering utility that's built into the input system doesn't work for GOTOs that have a line number as its argument. So take my advice and just use labels. And while I'm on the subject, you'll be happy to find out that you can use calculated GOTOs. In other words, a line like this: GOTO A*15+3 is acceptable.

— 170 "FOREGROUND"

Another label.

— 180 PT=(PT+1)AND15

This just allows you to cycle the variable PT from 0 to 15. Since PT is used to determine foreground color, 0 to 15 makes sense (0 is black, 1 white, etc.).

— 190 HRPTCOL PT

So let's change the hi-res foreground color to PT.

— 200 RETURN

— 210 "BACKGROUND"

This is the "BACKGROUND" subroutine I was telling you about.

— 220 GD=(GD+1)AND15

This does the same thing to GD that 180 did to PT.

— 230 HRGDCOL GD

And this does the same thing to the background color of your hi-res screen that line 190 did to the foreground color.

— 240 RETURN

— 250 "INVERT"

Another label for another subroutine.

— 260 HRINV

This command inverts the entire hi-res screen. All the off pixels go on, all the on pixels go off.

— 270 RETURN

— 280 "DESK"

The last subroutine label.

— 290 IF M2=1 THEN STOP:ENDIF

If sub-menu item 1 on the last menu item was selected, we will stop the program.

— 300 DESKTOP

Here's a nice, finishing touch. DESKTOP returns you to the GEOS desktop. Very professionally.

Closing Thoughts

We have certainly just scratched the surface of BeckerBASIC here. In an upcoming column I'll publish some tips on how to really motor with BeckerBASIC.

Owners of *geoWrite Workshop 128:* if you've been unable to install your program and if you have a 1571 disk drive, the problem is easily solved by simply clicking the configuration icon and changing the drive to 1541. You can change it back after the program is installed. This one puzzled me for a long time.

Last note: Human beings love to learn new things . . . until they think they've mastered something. Then they fear and dread learning new things. When most of us got our computers we went on a learning tear and wasn't it fun? You bet. Then we got secure in our knowledge and stopped learning. Last month I reported that *geoPublish* re-kindled the learning spirit in me. This month, BeckerBASIC did the same.

Get off your haunches. Learn, baby, learn. It's fun.

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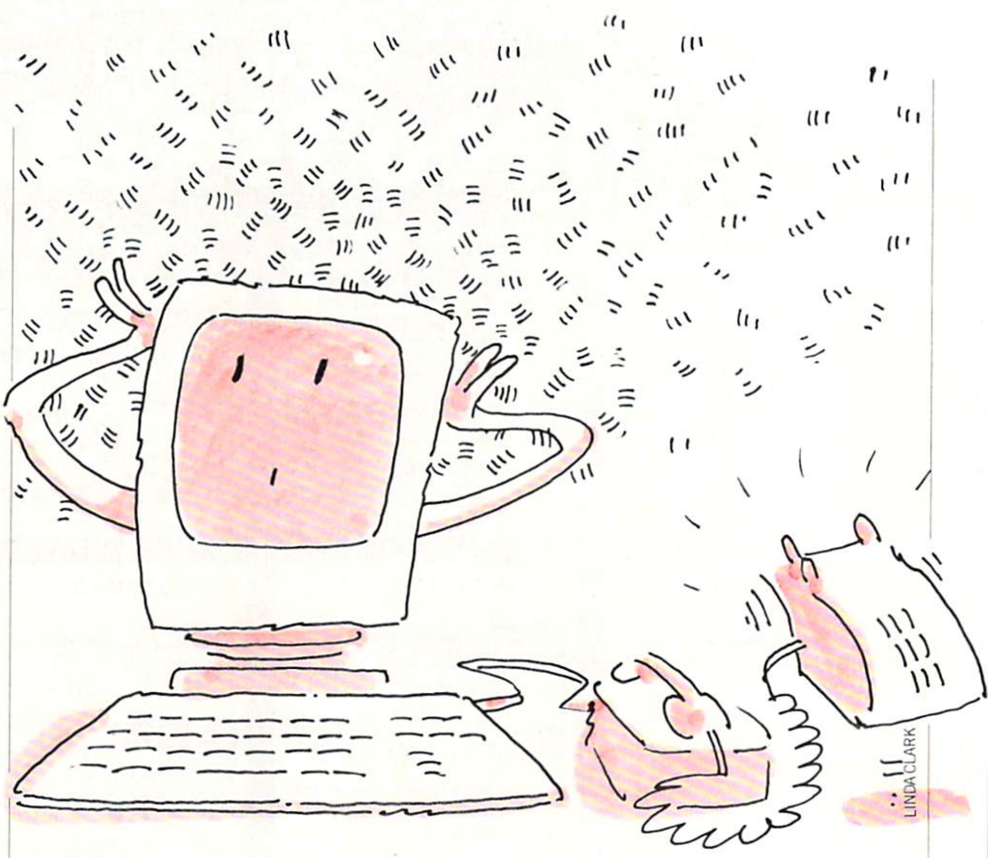
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by Robert W. Baker

Help with the Basics

Explore the inner workings of the Q-Link telecommunication service with network pro Bob Baker.



As I mentioned in the last column, there's complete information about the online games in the Just For Fun section of Q-Link. You can find much of the same information in the Members' Online Guide within the Customer Service area. You'll also find a lot of information on other basic Q-Link functions.

There's plenty of information about uploading and downloading files with very basic instructions for each function. You can also get help on formatting a blank diskette, saving screen text onto disk, and more. If you have a problem with downloading a file, this is where you can apply for a credit for incomplete downloads. Be prepared to provide as much information as possible about the incomplete download. There are certain restrictions on granting credits.

In the Online Guide's "Connecting" section you'll find information that may be helpful if you're experiencing trouble connecting with the Q-Link system. There's information for SX-64 users, help for those with call waiting, instructions on how to update your Q-Link software when changing modems or access numbers, plus some explanation about what may be happening when you're having problems online.

Although the Q-Link software was not specifically designed for the SX-64 system, it generally does work without any problems. The only problem I've encountered is the possible need to connect a serial peripheral cable to the expansion connector on the back of the SX-64 computer. The other end of the cable should not be connected to any disk drives, printers or other peripherals.

There seems to be a problem with some SX-64 units where the load of the extra cable is needed for some software to function properly on those systems. Of the two SX-64 systems that I've had over the past few years, one had this problem while the other did not, but the extra cable did the trick. The Online Guide does mention the possible need to add this cable.

One other area of concern when using an SX-64 system to access Q-Link is possible power supply problems caused by attaching an external modem that draws power from the computer. As mentioned in numerous articles over the years, the power supply in the basic SX-64 system is very marginal. Adding any external devices that draw power from the system may cause the supply to fail. I've seen this first hand, and it can be an expensive repair. There are adaptors that allow remotely powering the Commodore modems. One is available from a company online Q-Link. For more information, contact Larry29 via E-Mail.

If your telephone service includes call waiting, it normally must be disabled when using your computer and modem on the phone line. Otherwise any incoming phone call will cause your current connection to be disrupted or even disconnected. The Online Guide indicates that dialing *70 with a touchtone phone, or 1170 with any phone, will disable call waiting with most telephone systems. If this doesn't work, contact your local phone company for help.

There is a way to make disabling call waiting automatic. The trick is to add 1170$ in front of the normal access number that you use to connect to Q-Link. You can add these digits to your access number using the Change Access function on your Q-Link disk as explained in the Online Guide.

Changing your access telephone number is very simple. Instead of loading or booting your Q-Link disk as normal, load the Change Access program on the disk. As a short cut you can simply type:

```
LOAD "C*",8,1
```

The Change Access program will load and start automatically. Select the appropriate function to change your calling number, then enter the appropriate phone number with any required prefix. If you are adding the numbers to disable call waiting, keep in mind that they actually get inserted after the first character of the access number that indicates what network you are using. Your access number might look something like:

+1170$5551234

The very first character of the access number must be either a plus sign (+), slash (/), or exclamation point (!) to indicate the desired network to be used to access Q-Link. The dollar sign between the 1170 to defeat call waiting and the

5551234 access number causes the Q-Link software to pause between dialing the various digits in the access number. The dollar sign can be used to insert pauses anywhere in the access number if your phone system needs extra time between any group of digits.

The proper prefix character in the access number is essential to the Q-Link software so that the correct network protocol is used when trying to access Q-Link via one of the networks. The plus sign is used for Telenet, the slash for Tymenet, and the exclamation point for Datapac users in Canada. Using the wrong prefix character will prohibit you from reaching Q-Link via the indicated access number.

While on the subject of Access Numbers, there is a pretty complete listing of available input phone numbers available in the Online Guide area. If you're moving, visiting friends or going on vacation, and want to take Q-Link with you, check here to find a local input node near where you'll be going. If you can't find anything listed, call Q-Link Customer Service at (800) 392-8200 for help.

For those using Telenet, there is another service available for locating input nodes anywhere in the country, but this is not really associated with Q-Link. Using a standard terminal software package and your computer system, you can access Telenet free of charge and get information on every input node they have available, as well as recent and upcoming changes. You can also call Telenet Customer Service directly at (800) 336-0437 if you need assistance.

To access the Telenet phone list, simply use your terminal software and modem to call any local input node, or their toll-free network input node at (800) 424-9494. Unfortunately, the toll-free Telenet input cannot be used to access Q-Link, since there are extra high charges generally associated with using this input.

When you are connected to the Telenet network, press RETURN twice, and you should get a prompt for terminal type:

TERMINAL=

Simply press RETURN again, then enter the area code and local exchange number when prompted. These numbers are presumably used for statistics by Telenet in helping to determine where new input nodes should be located.

After going through these steps, you should see @ as a prompt for input. Now enter the word MAIL to access the online electronic mail system of Telenet. When prompted for User Name and Password, enter the word PHONES to both requests. You should then have access to the various lists of input nodes and system information provided by Telenet. From this main menu enter ASYNC to get to the listing of local telephone input nodes used for Q-Link service.

Now follow the simple online prompts to see phone listings by state or area code. As an alternative, you can set your terminal software to capture or print incoming text and then display the entire phone list for future reference. Anyone using Telenet will find this service extremely handy.

When you're done, enter QUIT to exit from the Telenet phone listing. This will take you back to the @ prompt, with the network software waiting for another command. From there you can enter the HANGUP command to instruct Telenet to disconnect, or you can simply hang up from your end of the connection.

That's it for another month. As usual, you can reach me on Q-Link via E-Mail to RBAKER if you have any questions or suggestions for future columns. Reprints of previous columns are available online in the News and Reference section of CIN, near my New Product Information forum. Hope everyone has a great summer! C

64 and 128 Software Reviews/The Eternal Dagger

Continued from page 26

permost in your mind should be the improvement of your characters by getting better weapons, armor and items for them, as well as spending experience points to increase skills and abilities. Items must either be bought from shops in the various towns or recovered from enemy creatures after a battle. After fighting monsters you will also find money with which you can buy more supplies and useful items.

Explore the terrain, looking for unusual places and characters, and only stop when you make camp, get tired or encounter a group of monsters. When combat is necessary, attempt to defeat the enemy as soon as possible. After any battle, you are automatically forced to make camp. Use this time to examine items you have discovered on the monsters, distribute money that you've found and heal any characters who may be bleeding or have injuries (the two types of physical damage). Also, improve any characters you can by distributing the items you now have. The next stop should be a town in which you can use the money to finance better equipment and supplies. By repeating this process, you will stumble upon a lot of useful information, explore the map and increase the usefulness and power of your party and characters.

When not in combat a single icon stands for your party in both wilderness and dungeons. The dungeons are interesting places to visit because of the unique challenges that lie within. Finding a dungeon involves searching a square of the map for tracks that lead to its entrance. Unfortunately, following the tracks causes you to encounter many groups of monsters before you reach the entrance. But as you defeat them there are fewer and fewer monsters in a certain section of the map. Continue to depopulate the map of the monsters, and you'll be able to make it to the dungeon, well worth the effort because of its contents.

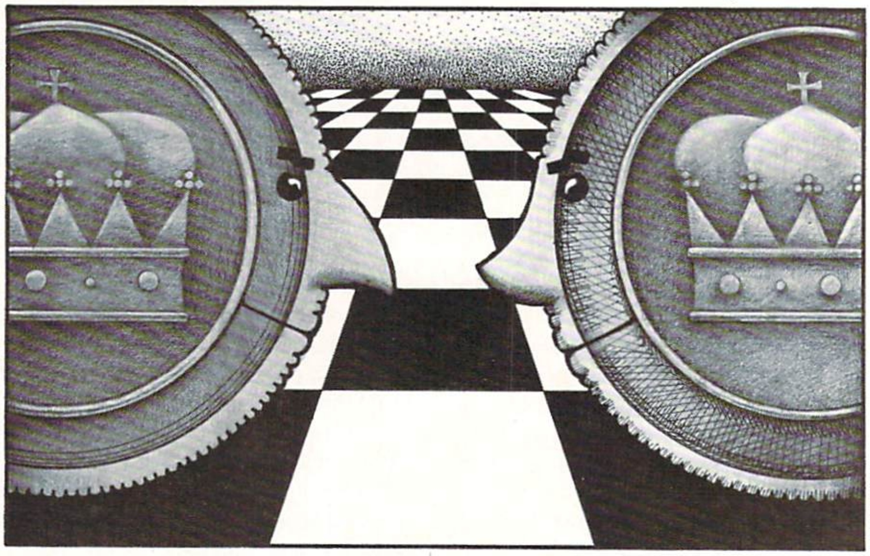
Magic is very important and useful in the Middle World. Learn the effects of the spells and the magical items on monsters. This information will be very valuable to you when you encounter more powerful creatures. There are three types of physical damage that can be imparted with weapons (Cut, Bash and Thrust) and five types of magical damage (Fire, Cold, Life-Drain, Holy and Electrical) performed by spells and magical items. Finding out what type of damage is most effective against an opponent and which character best inflicts that type is the key to defeating the monsters and winning the game—yet another unique feature of the game system.

A booklet included with *The Eternal Dagger* that discusses everything you need to know about Middle World, including specific tips about how to play *The Eternal Dagger*. This booklet is just as useful as the instruction manual and a necessity for defeating new monsters.

The Eternal Dagger offers a lot of entertainment with its seemingly complex, yet surprisingly simple, game system and challenges. The colorful graphics are used advantageously to show your surroundings and battles. Most of this role-playing game will take place in your mind, not in front of your eyes. Yet, what is on the screen is well-done. Expect to spend a lot of time in completing *The Eternal Dagger*, but rest assured that the adventure doesn't offer endless boring battles, but intelligent challenges within an established game system in a brand new place—Middle World. C

by Michael L. Lewis

Stratahex
for the Commodore 64



MIA BOSNA

Here is an original game that is unlike most magazine programs. Instead of simply shooting at alien targets or trying to beat the clock, this is a strategy game played on a hexagonal board. Hence, the name Stratahex.

The object of the game is to get your checker to the other side of the board while preventing your opponent from doing the same. After the title screen appears, a prompt will ask "How Many Players?" Enter a number two through four for the number of your choice. Wait approximately 45 seconds while the screen is being randomly set up.

At the bottom of the screen will be command words in black with an "Enter Move" prompt at the very bottom written in the same color as the checker to move.

There are two possible commands you can use every round. You can either move or fire at an opponent. Each command requires a two-letter combination.

To move, enter M followed by one of the six directions at the bottom of the screen:

E—up and left
R—up
T—up and right
C—down and left
V—down
B—down and right

Notice the keyboard pattern. It will help you get accustomed to the configuration. Be careful not to move in the direction of a yellow barrier, which prevents movement and essentially wastes your turn.

Another command at your disposal is to fire at an opponent. To fire, enter F followed by one of the six directions at the bottom of the screen. (They are the same as the move command.) If your fire hits an opponent, he will be sent back to his original beginning. If a fire hits a yellow barrier, it will be stopped and won't hit your opponent.

Now that you're acquainted with Stratahex all you need to do is type it in, save it, gather up one to three friends, and have fun! ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Stratahex

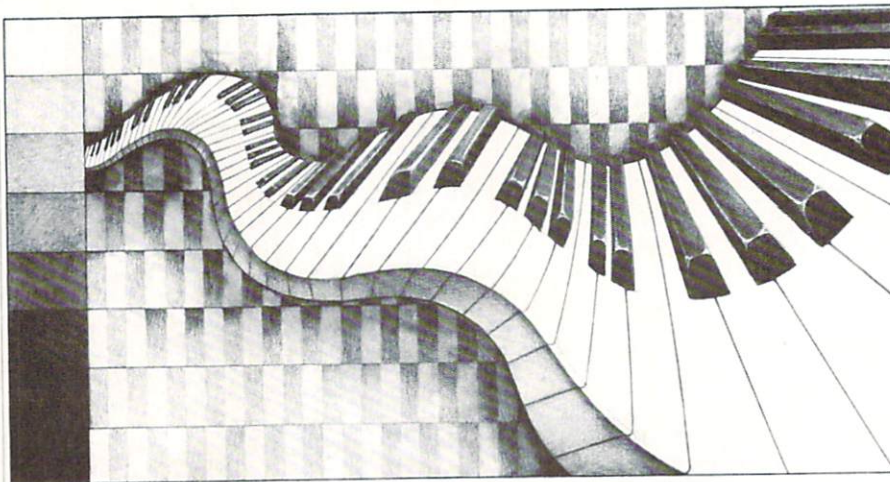
```
10 REM *** INITIALIZATION ***'BUDC
11 REM'BARX
20 C=55296:V=1024:Y(1)=0:Y(2)=20
   :Y(3)=11:Y(4)=10'GOCK
25 X(1)=19:X(2)=19:X(3)=1:X(4)=39'EBJL
30 POKE 53280,0'BHTA
40 POKE 53281,4'BHYB
50 C(1)=10:C(2)=14:C(3)=13
   :C(4)=12'ECDJ
99 REM'BARO
100 REM *** TITLE SCREEN ***'BREY
101 REM'BARV
110 PRINT "[CLEAR,WHITE]";'BBIW
120 PRINT "[DOWN10]";TAB((39-17)/2);"
    [RVS]S T R A T A H E X[RVOFF]
    "'EKYG
130 PRINT:PRINT TAB((39-2)/2);"[BLUE]
    BY"'FJRD
140 PRINT:PRINT TAB((39-10)/2);"[CYAN]
    MIKE LEWIS"'FKQH
150 FOR DE=1 TO 2000:NEXT'EIPE
499 REM'BARQ
500 REM *** # OF PLAYERS ***'BQXD
501 REM'BARA
510 PRINT "[CLEAR,BLACK]
    HOW MANY PLAYERS"'BADG
520 GET A$:IF A$<"2" OR A$>"4" THEN
    520'GKDH
530 PL=VAL(A$)'CGAE
540 C(PL+1)=1:C(PL+2)=1'EPXJ
999 REM'BARV
1000 REM *** SCREEN SET UP ***'BRTW
1001 REM'BART
1010 PRINT "[CLEAR,DOWN22,BLACK]";
     TAB((39-17)/2);"<<<PLEASE
     WAIT>>>"'EKCF
1020 FOR CC=55296 TO 56135'DMHY
1030 RN=INT(RND(0)*10)+1'FKXB
1040 IF RN>7 THEN PC=7:GOTO 1055'FLUC
1050 PC=0'BDQY
1055 POKE CC,PC:NEXT CC'CIEG
1060 FOR X=0 TO 39 STEP 2'EFPC
1070 FOR Y=0 TO 20 STEP 2'EFGD
1080 IF (X+2)/4=INT((X+2)/4) AND
     Y/2=INT(Y/2) THEN Y=Y-1'PVEP
1090 POKE V+X+(40*Y),78'EKMG
1100 NEXT Y:NEXT X'CDNU
1120 FOR X=0 TO 39 STEP 2'EFPY
1130 FOR Y=1 TO 20 STEP 2'EFHA
1140 IF (X+2)/4=INT((X+2)/4) AND
     (Y+1)/2=INT((Y+1)/2) THEN
     Y=Y-1'RCLP
1150 POKE V+X+(40*Y),77'EKLD
1160 NEXT Y:NEXT X'CDNB
1170 FOR X=1 TO 39 STEP 2'EFQE
1180 FOR Y=0 TO 20 STEP 2'EFGF
```

```
1190 IF (X+1)/4=INT((X+1)/4) AND
     Y/2=INT(Y/2) THEN Y=Y-1'PVCR
1200 POKE V+X+(40*Y),119'ELAA
1210 NEXT Y:NEXT X'CDNW
1220 POKE C+X(1)+40*Y(1),C(1)
     :POKE V+X(1)+40*Y(1),81'IGJI
1223 POKE C+X(2)+40*Y(2),C(2)
     :POKE V+X(2)+40*Y(2),81'IGOL
1225 POKE C+X(3)+40*Y(3),C(3)
     :POKE V+X(3)+40*Y(3),81'IGTN
1227 POKE C+X(4)+40*Y(4),C(4)
     :POKE V+X(4)+40*Y(4),81'IGYP
1230 PRINT"[HOME,DOWN22,SPACE38]";
     'BBDF
1240 PRINT "[HOME,DOWN21]
     M=MOVE F=FIRE E=NORTHWEST
     T=NORTHEAST"'BAYL
1250 PRINT "R=NORTH V=SOUTH
     C=SOUTHWEST B=SOUTHEAST"'BAQL
1499 REM'BARP
1999 REM'BARU
2000 REM *** GAME PLAY ***'BOSW
2001 REM'BARU
2005 FOR PT=1 TO PL'DFVC
2007 G$="":P=0:PC=0'DJFF
2010 PRINT CHR$(C(PT)+140);"[HOME,
     DOWN23]ENTER MOVE:[SPACE4]"'DLYE
2020 GET A$:IF A$<>"M" AND A$<>"F"
     THEN 2020'ILME
2030 PRINT "[HOME,DOWN23,RIGHT12]";
     A$'BDVB
2040 G$=G$+A$'CGAA
2050 GET A$'BCGA
2055 IF A$<>"E"AND A$<>"R"AND
     A$<>"T"AND A$<>"C"AND A$<>"V"AND
     A$<>"B"THEN 2050'TQEV
2060 PRINT "[HOME,DOWN23,RIGHT13]";
     A$'BDAE
2070 G$=G$+A$'CGAD
2080 IF LEFT$(G$,1)="M" THEN 2100'EKNG
2090 GOTO 2500'BEEE
2099 REM'BARM
2100 REM *** PLAYER MOVE ***'BQRY
2101 REM'BARV
2105 POKE C+X(PT)+40*Y(PT),4'EPGG
2110 G$=RIGHT$(G$,1)'CIEX
2120 IF G$="E" THEN G=1'EEPA
2121 IF G$="R" THEN G=2'EEEB
2122 IF G$="T" THEN G=3'EEHC
2123 IF G$="C" THEN G=4'EEQD
2124 IF G$="V" THEN G=5'EELE
2125 IF G$="B" THEN G=6'EERF
2130 ON G GOTO 2135,2140,2150,2160,
     2170,2180'CFTE
2135 IF Y(PT)=0 OR X(PT)=1
     OR(PEEK(C+(X(PT)-1)+(Y(PT)-1)*40)
     AND 15)=7 THEN 2190'ORMV
2137 X(PT)=X(PT)-2:Y(PT)=Y(PT)-1
     :GOTO 2190'FDCP
2140 IF Y(PT)<2 OR (PEEK(C+X(PT)+(Y
     (PT)-1)*40)AND 15)=7  THEN
     2190'LICN
2145 Y(PT)=Y(PT)-2:GOTO 2190'DQKJ
2150 IF X(PT)=39 OR Y(PT)=0
     OR(PEEK(C+(X(PT)+1)+(Y(PT)-1)*40)
     AND 15)=7 THEN 2190'OSUS
2155 Y(PT)=Y(PT)-1:X(PT)=X(PT)+2
     :GOTO 2190'FDBP
2160 IF X(PT)=1 OR Y(PT)=20
     OR(PEEK(C+(X(PT)-1)+Y(PT)*40)AND
     15)=7 THEN 2190'NPRS
2165 Y(PT)=Y(PT)+1:X(PT)=X(PT)-2
     :GOTO 2190'FDBQ
2170 IF Y(PT)>18 OR (PEEK(C+X(PT)+(Y
     (PT)+1)*40)AND 15)=7 THEN
     2190'LJEQ
2175 Y(PT)=Y(PT)+2:GOTO 2190'DQJM
2180 IF X(PT)=39 OR Y(PT)=20
     OR(PEEK(C+(X(PT)+1)+Y(PT)*40)AND
     15)=7 THEN 2190'NQAU
2185 Y(PT)=Y(PT)+1:X(PT)=X(PT)+2
     :GOTO 2190'FDAS
2190 POKE C+X(PT)+Y(PT)*40,C(PT)
     :POKE V+X(PT)+Y(PT)*40,81'ILWR
2195 IF Y(1)=20 THEN W=1
     :GOTO 4000'FNAO
2200 IF Y(2)=0 THEN W=2:GOTO 4000'FMCB
2210 IF X(3)=39 THEN W=3
     :GOTO 4000'FNNC
2220 IF X(4)=1 THEN W=4:GOTO 4000'FMGD
2230 GOTO 2960'BEOA
2499 REM'BARQ
2500 REM *** PLAYER FIRE ***'BQAD
2501 REM'BARA
2510 G$=RIGHT$(G$,1)'CIEC
2520 IF G$="E" THEN A=1'EEJE
2540 IF G$="R" THEN A=2'EEXG
2550 IF G$="T" THEN A=3'EEBH
2560 IF G$="C" THEN A=4'EEKI
2570 IF G$="V" THEN A=5'EEFJ
2580 IF G$="B" THEN A=6'EELK
2590 ON A GOTO 2600,2650,2700,2750,
     2800,2850'CFBO
2600 X=X(PT):Y=Y(PT)'CNIE
2602 IF X<2 OR Y=0 THEN 2900'FILH
2605 X=X-1:Y=Y-1'EHIJ
2610 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLP
2615 X=X-1'CDLI
2620 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYP
2625 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXS
2626 IF PC>1 THEN NEXT LO'EFUL
2630 IF PC=0 OR PC=1 THEN 2602'FKAI
2635 GOTO 2900'BEIJ
2650 X=X(PT):Y=Y(PT)'CNIJ
2652 IF Y<2 THEN 2900'DGIK
2655 Y=Y-1'CDNM
2660 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLU
2665 Y=Y-1'CDNN
2670 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYU
2675 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXX
```

Continued on page 90

by Paul R. Machula

Tempered Fun
for the Commodore 64



MIA BOSNA

From the time of Aristotle's disciple, Aristoxenus, to the time of J. S. Bach a subject that often occupied the best minds of musicians and mathematicians alike was that of the temperament, or tuning of instruments. In the time of Bach the controversy became especially pronounced. The controversy revolved around the question of how to divide the octave into tones that are most pleasing to the ear. The problem arises in the fact that our scales (major and minor, for example) may sound good in one key, but often sound quite hideous in another if we use the tuning that was advocated by most musicians prior to Bach's time. This tuning, known as "Just" tuning, is based essentially on the idea that the fourth (fa) and fifth (sol) tones of a diatonic scale (a normal scale, with seven tones) are 4/3 and 3/2 the first (do) tone, respectively. The other tones of a scale are based on still other, *unequal,* ratios. This arrangement, because of reasons that are far too complex to discuss here, force the third diatonic tone to take on very interesting aural characteristics. It is the third that determines the quality of chords: harmonies. In Just temperament, harmonies are particularly pleasing to the ear, but melodies and harmonies are essentially limited to one key. It is difficult to write a piece using more than that one simple key. It is precisely this limitation that the dissenter Aristoxenus, and others like him (including Bach), wished to overcome.

Aristoxenus advocated the division of the octave into *equal* parts. In the equal temperament of our day (and as championed by Bach) each tone is the twelfth root of two times the previous tone, resulting in a chromatic scale of twelve tones to the octave. Even though this may sound hopelessly complex mathematically, it is really quite simple aurally. The effect of this tuning is that the fourth and fifth tones of a diatonic scale are very slightly "mistuned." For all practical purposes, however, there is no difference to the ear. Equal temperament also makes the third diatonic tone sound rather sharp. Nevertheless the mistuned third can still be tolerated by most people (although to discerning ears, it is noticeable). The most positive outcome of Equal temperament is the fact that all the keys can now be used quite easily, opening up vast harmonic and formal possibilities. This is why Bach preferred Equal temperament as opposed to Just temperament. He could experiment with a greatly expanded palette of sound.

From the time of Bach to the present the Equal system of temperament has prevailed because of its greater versatility. Nevertheless, the older tuning is still occasionally invoked by some musicians as more satisfying. It's all in the ear of the beholder (behearer?). I have written this computer program to introduce you to these concepts aurally.

The program will give you the opportunity to experiment in various ways with both Just and Equal temperaments. Two other temperaments are also included: Pythagorean and Mean. Pythagorean tuning basically produces an even sharper diatonic third than Equal tuning and is sometimes advocated by instrumentalists who are primarily melodists (violinists, oboists, etc.). Mean tuning is still another alternative to Just temperament. It is somewhat closer to Just tuning than Equal temperament.

In the program I have also included the primary diatonic scales (modes) of Occidental music (major, minor, Dorian, Phyrgian, etc.). After you choose your temperament you are given the opportunity to choose one of these. The scale will be played in your chosen temperament. If, however, you wish to hear a chromatic scale, the program also gives you the opportunity to do that. You will find the chromatic scale can be played in either sharps or flats, which are not equivalent in all tunings except Equal. (C# is the same as Db in Equal temperament, but not in Just temperament.)

After you choose your temperament and scale, you will then be given the opportunity to experiment with various applications of your tuning and scale. The applications you can choose from are: Octave Scale, Root Chord, Real-Time Melody, Twinkle Twinkle Little Star Melody, and Twinkle Twinkle Little Star Harmonized. Remember that all these applications will be played in your chosen temperament and scale. The easiest application in which to hear the difference between the temperaments is the Root Chord. You will hear that a root chord sounds rather more pleasing in Just temperament. This is because the middle note of the chord, which is the diatonic third, is not as sharp as it is in Equal temperament.

Be aware that Twinkle Twinkle Little Star Harmonized in scales other than major or minor will sound quite strange indeed. The peculiarities of scales must be taken into account when harmonies are written in them. Twinkle Twinkle Little Star Harmonized does not do this—it plays the harmony in strict model transposition.

If you choose the chromatic scale, whatever temperament, you will be able to hear only the octave scale application.

In the application titled Real-Time Melody you will be able to play a tune. Use the top row of the keyboard, numbers 1-8. The number one corresponds to the solfege syllable "do." You can play the basic solfege syllables according to your chosen scale and temperament. For purists: I realized that "re" through "ti" in scales other than major should be titled something other than "re," etc., but I used the basic syllables simply as an aid to those who are not too familiar with scale structures. Since this program is in BASIC you will also notice that there is a slightly delayed response in the syllables higher than "fa."

One other note: In Menu 1 you are given the choice of a temperament which is

very different from the others—your own Equal temperament. The normal Equal temperament of our day is already built into the program. But with this option you can also split the octave into any number of equal segments you desire (from 1 to 1200). When you take this option the program will play a comparison tone (do) first, and then proceed to play the intervals as high as the computer will go (unless you terminate it earlier). As each interval is played the number of the interval is also displayed. I find this to be a particularly interesting aural experience. It is truly strange to hear an octave with thirteen chromatic tones rather than the normal twelve! If you choose to play a scale with seven equal intervals you may be interested to know that it is equivalent to the Javanese scale known as "pelog," often played in gamelan orchestras. If you choose to play a scale with 1200 equal intervals you will be playing the "cents" scale commonly used in tuning. You will be able to test your own pitch discrimination skills with this. Most people can hear the difference of about four or five cents (intervals number four and five, respectively). You will hear a slight "beating" between the comparison tone and those intervals. A few of you, however, may be able to hear the difference of two or three cents.

Now, as for my own temperament prejudice? I wouldn't dare quarrel with Bach! ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Tempered Fun

```
5 CLR:RESTORE'CBWE
6 REM ARRAYS FOR TEMPERAMENTS'BVUK
10 DIM EH(46),PH(46),JH(46),
   MH(46)'BCPD
20 DIM EL(46),PL(46),JL(46),
   ML(46)'BCGE
25 REM ARRAY FOR SCALES'BOAH
30 DIM HM(20),LM(20)'BNTC
32 REM ARRAY FOR REAL TIME'BQVG
35 DIM AS(8)'BFMF
36 GOSUB 6000:RESTORE:REM READ ASCII
   VALUES FOR REAL TIME'DHMP
40 POKE 53272,23:POKE 53280,7'CQVE
45 REM MENU 1'BFTG
50 PRINT"[CLEAR,DOWN3]"
   :PRINT TAB(6);"[SHFT P,SHFT L,
   SHFT E,SHFT A,SHFT S,SHFT E]
   [SHFT W,SHFT A,SHFT I,SHFT T]
   . . . [SHFT S,SHFT E,SHFT T2,
   SHFT I,SHFT N,SHFT G] [SHFT U,
   SHFT P]"'DECV
60 PRINT"[DOWN]":PRINT TAB(12);"(
   [SHFT A]BOUT 14 SECS.)"'DFPJ
70 GOSUB 5000:REM SET UP ARRAYS'CQAI
80 POKE 648,4:POKE 53281,0
   :PRINT"[L. BLUE]";'DPNJ
82 PRINT"[CLEAR]":PRINT TAB(14);"
   [SHFT T,SHFT E,SHFT M,SHFT P,
   SHFT E,SHFT R,SHFT E,SHFT D]
   [SHFT F,SHFT U,SHFT N]"'DFKS
85 PRINT TAB(14);"[CMDR T12]"'CEFS
90 PRINT TAB(17);"[SHFT M,SHFT E,
   SHFT N,SHFT U] 1":PRINT'DFBL
100 PRINT"[SHFT I]. [SHFT T]
    EMPERAMENTS"'BAKA
110 PRINT TAB(3);"[RVS]1.[RVOFF]
    [SHFT E]QUAL"'CDUA
120 PRINT TAB(3);"[RVS]2.[RVOFF]
    [SHFT P]YTHAGOREAN"'CDXD
130 PRINT TAB(3);"[RVS]3.[RVOFF]
    [SHFT J]UST"'CDVC
140 PRINT TAB(3);"[RVS]4.[RVOFF]
    [SHFT M]EAN"'CDKD
150 PRINT TAB(3);"[RVS]5.[RVOFF]
    [SHFT Y]OUR OWN EQUAL
    TEMPERAMENT"'CDPK
155 PRINT'BACF
160 PRINT"[SHFT I2]. [SHFT S]
    CALES"'BANF
170 PRINT TAB(3);"[RVS]1.[RVOFF]
    [SHFT M]AJOR"'CDVG
180 PRINT TAB(3);"[RVS]2.[RVOFF]
    [SHFT M]INOR"'CDEI
190 PRINT TAB(3);"[RVS]3.[RVOFF]
    [SHFT D]ORIAN"'CDLJ
200 PRINT TAB(3);"[RVS]4.[RVOFF]
    [SHFT P]HRYGIAN"'CDEB
210 PRINT TAB(3);"[RVS]5.[RVOFF]
    [SHFT L]YDIAN"'CDRC
220 PRINT TAB(3);"[RVS]6.[RVOFF]
    [SHFT M]IXOLYDIAN"'CDIE
230 PRINT TAB(3);"[RVS]7.[RVOFF]
    [SHFT A]EOLIAN"'CDBE
240 PRINT TAB(3);"[RVS]8.[RVOFF]
    [SHFT L]OCRIAN"'CDRF
250 PRINT TAB(3);"[RVS]9.[RVOFF]
    [SHFT C]HROMATIC (B OR #)"'CDYI
260 PRINT"[L. RED,HOME,DOWN22,SHFT E]
    NTER NUMBER OF DESIRED
    TEMPERAMENT. [L. BLUE]";'BBBQ
270 POKE 198,0:POKE 204,0:POKE 207,0
    :WAIT 198,1:POKE 204,1:GET K$'GHVM
271 TU=VAL(K$):IF TU=0 THEN 260'FNKK
272 IF TU=1 OR TU=2 OR TU=3 OR TU=4
    THEN PRINT K$;:DE=.5:GOSUB 7000
    :GOTO 280'NEAU
273 IF TU=5 THEN PRINT K$;:DE=.5
    :GOSUB 7000:GOTO 1300'HVQO
274 GOTO 260'BDHI
280 PRINT"[HOME,DOWN23,SPACE38]";'BBUL
281 PRINT"[L. RED,HOME,DOWN23,SHFT E]
    NTER NUMBER OF DESIRED SCALE.
    [L. BLUE]";'BBAR
282 POKE 198,0:POKE 204,0:POKE 207,0
    :WAIT 198,1:POKE 204,1:GET K$'GHVP
283 MO=VAL(K$):IF MO=0 THEN 281'FNMN
284 IF MO>=1 OR MO<=8 THEN PRINT K$;
    :DE=.5:GOSUB 7000:GOTO 300'LXXU
285 IF MO=9 THEN PRINT K$;:DE=.5
    :GOSUB 7000:GOTO 287'HUWR
286 REM CHROMATIC SCALE'BOTO
287 PRINT"[CLEAR,DOWN2,SHFT T]
    HIS FUNCTION WILL PLAY A[SPACE2]
    CHROMATIC OCTAVE SCALE ONLY"'BAKC
288 PRINT"[DOWN2,SHFT D]
    O YOU WISH A CHROMATIC SCALE ON
```

```
    SHARPS OR FLATS? (S/F) ";'BBQC
289 POKE 198,Ø:POKE 204,Ø:POKE 207,Ø
    :WAIT 198,1:POKE 204,1:GET K$'GHVW
290 IF K$<>"S"AND K$<>"F"THEN 289'HHVL
295 IF K$="S"THEN PRINT K$:DE=.5
    :GOSUB 7ØØØ:MO=9:AP=1
    :GOTO 4ØØ'JBSV
298 IF K$="F"THEN PRINT K$:DE=.5
    :GOSUB 7ØØØ:MO=1Ø:AP=1
    :GOTO 4ØØ'JCUY
299 REM MENU 1'BFTP
3ØØ PRINT"[CLEAR]":PRINT TAB(14);"
    [SHFT T,SHFT E,SHFT M,SHFT P,
    SHFT E,SHFT R,SHFT E,SHFT D]
    [SHFT F,SHFT U,SHFT N]"'DFKJ
3Ø5 PRINT TAB(14);"[CMDR T12]"'CEFL
31Ø PRINT TAB(17);"[SHFT M,SHFT E,
    SHFT N,SHFT U] 2":PRINT'DFCE
32Ø PRINT"[SHFT I3]. [SHFT A]
    PPLICATIONS"'BANG
33Ø PRINT TAB(3);"[RVS]1.[RVOFF]
    [SHFT O]CTAVE SCALE"'CDFG
34Ø PRINT TAB(3);"[RVS]2.[RVOFF]
    [SHFT R]OOT CHORD"'CDLH
35Ø PRINT TAB(3);"[RVS]3.[RVOFF]
    [SHFT R]EAL-TIME MELODY"'CDSJ
36Ø PRINT TAB(3);"[RVS]4.[RVOFF]
    [SHFT T]WINKLE [SHFT L]ITTLE
    [SHFT S]TAR (MELODY)"'CDDP
37Ø PRINT TAB(3);"[RVS]5.[RVOFF]
    [SHFT T]WINKLE [SHFT L]ITTLE
    [SHFT S]TAR (HARMONIZED)"'CDWR
38Ø PRINT"[L. RED,HOME,DOWN22,SHFT E]
    NTER NUMBER OF DESIRED
    APPLICATION. [L. BLUE]";'BBNT
381 POKE 198,Ø:POKE 204,Ø:POKE 207,Ø
    :WAIT 198,1:POKE 204,1:GET K$'GHVP
382 AP=VAL(K$):IF AP=Ø THEN 38Ø'FNPN
383 IF AP=1 OR AP=2 OR AP=3 OR AP=4
    OR AP=5 THEN PRINT K$;:DE=.5
    :GOSUB 7ØØØ:GOTO 4ØØ'PHNA
384 GOTO 38Ø'BDKK
399 REM PRIMARY PIVOT POINT'BRGU
4ØØ ON MO GOSUB 533Ø,535Ø,537Ø,539Ø,
    541Ø,543Ø,545Ø,547Ø,549Ø,551Ø'CBDJ
4Ø5 ON AP GOTO 5ØØ,6ØØ,7ØØ,9ØØ,
    11ØØ'CWTI
499 REM OCTAVE SCALE'BLJT
5ØØ PRINT"[CLEAR,DOWN2,RIGHT6,SHFT H,
    SHFT E,SHFT R,SHFT E,SHFT SPACE,
    SHFT I,SHFT S,SHFT SPACE,SHFT Y,
    SHFT O,SHFT U,SHFT R,SHFT SPACE,
    SHFT O,SHFT C,SHFT T,SHFT A,
    SHFT V,SHFT E,SHFT SPACE,SHFT S,
    SHFT C,SHFT A,SHFT L,SHFT E]
     !"'BASU
5Ø1 PRINT"[DOWN]([SHFT P]RESS <
    [SHFT S,SHFT P,SHFT A,SHFT C,
    SHFT E] [SHFT B,SHFT A,SHFT R]
    > TO END EARLY.)"'BANN
5Ø2 GOSUB 2ØØØ'BEDC
5Ø3 REM PLAY OCTAVE'BKJF
5Ø4 IF NO=13 THEN 51Ø'DHWG
5Ø6 FOR I=8 TO 15:GOTO 512'EIZJ
51Ø FOR I=8 TO 2Ø'DEKC
512 POKE SI,LM(I):POKE SI+1,HM(I)
    :REM PITCHES'EBOL
514 POKE SI+4,17:REM WAVEFORM GATE #1
    ON'DXFL
516 DE=1:GOSUB 7ØØØ:REM DURATION'DRPM
518 POKE SI+4,16:REM GATE #1 OFF'DQNN
519 GET K$:IF K$=" "THEN 57Ø'EINN
52Ø NEXT'BAEB
57Ø GOSUB 8ØØØ:PRINT:PRINT
    :PRINT"[SHFT D]O YOU WISH TO HEAR
    IT AGAIN? (Y/N) ";'EIYT
58Ø GOSUB 39ØØ'BENI
582 IF K$="N"THEN PRINT K$:DE=.5
    :GOSUB 7ØØØ:GOTO 8Ø'HRIR
584 PRINT K$:DE=.5:GOSUB 7ØØØ
    :GOTO 5ØØ'EQWQ
599 REM ROOT CHORDS'BKYU
6ØØ PRINT"[CLEAR,DOWN2]"
    :PRINT"[RIGHT8,SHFT H,SHFT E,
    SHFT R,SHFT E,SHFT SPACE,SHFT I,
    SHFT S,SHFT SPACE,SHFT Y,SHFT O,
    SHFT U,SHFT R,SHFT SPACE,SHFT R,
    SHFT O2,SHFT T,SHFT SPACE,SHFT C,
    SHFT H,SHFT O,SHFT R,SHFT D,
    SHFT SPACE]!"'CBPV
6Ø2 GOSUB 2ØØØ'BEDD
61Ø POKE SI,LM(8):POKE SI+1,HM(8)'DSTH
612 POKE SI+7,LM(1Ø):POKE SI+8,
    HM(1Ø)'EVBK
614 POKE SI+14,LM(12):POKE SI+15,
    HM(12)'EXWM
616 POKE SI+4,17:POKE SI+11,17
    :POKE SI+18,17'GWWP
62Ø PRINT:PRINT"[SHFT P]RESS <[SHFT S,
    SHFT P,SHFT A,SHFT C,SHFT E]
    [SHFT B,SHFT A,SHFT R]
    > TO CONTINUE.";'CCMQ
622 GET K$:IF K$<>" "THEN 622'FIJJ
66Ø GOSUB 8ØØØ'BEJH
67Ø PRINT:PRINT:PRINT:PRINT"[SHFT D]
    O YOU WISH TO HEAR IT AGAIN?
    (Y/N) ";'EERT
68Ø GOSUB 39ØØ'BENJ
682 IF K$="N"THEN PRINT K$:DE=.5
    :GOSUB 7ØØØ:GOSUB 8ØØØ
    :GOTO 8Ø'IWBT
684 PRINT K$:DE=.5:GOSUB 7ØØØ
    :GOTO 6ØØ'EQXR
699 REM REAL TIME PLAY'BMYW
7ØØ PRINT"[CLEAR,DOWN2,RIGHT13,SHFT P,
    SHFT L,SHFT A,SHFT Y] [SHFT A]
    [SHFT T,SHFT U,SHFT N,SHFT E]
     !"'BAHL
7Ø1 PRINT"[DOWN]([SHFT P]
    RESS THE NUMERIC KEYS FOR THE
    INDICATED SOLFEGE DEGREE.)"'BAYS
71Ø FOR X=Ø TO 4:PRINT"[DOWN]";
    :NEXT'FGJG
711 PRINT"[RIGHT8]"'BADE
712 PRINT"[RIGHT8,CMDR K,SHFT D,
    SHFT O,CMDR H,SHFT R,SHFT E,
    CMDR H,SHFT M,SHFT I,CMDR H,
    SHFT F,SHFT A,CMDR H,SHFT S,
```

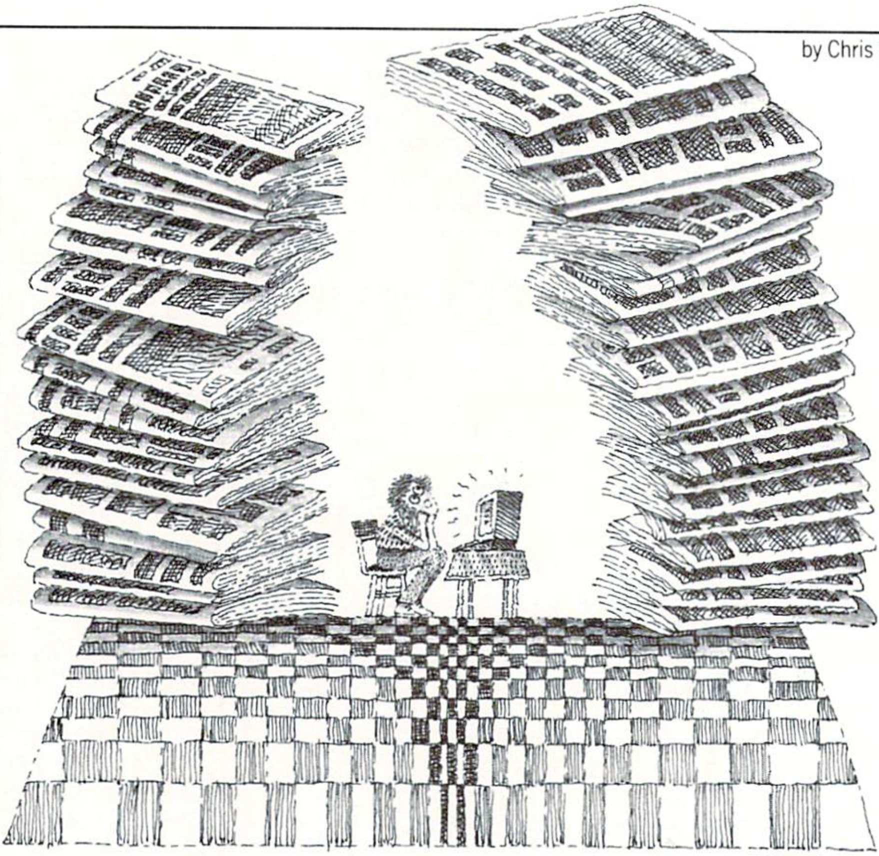
```
    SHFT O,CMDR H,SHFT L,SHFT A,
    CMDR H,SHFT T,SHFT I,CMDR H,
    SHFT D,SHFT O,CMDR K]"'BAJY
713 PRINT"[RIGHT8,CMDR K] 1[CMDR H] 2
    [CMDR H] 3[CMDR H] 4[CMDR H] 5
    [CMDR H] 6[CMDR H] 7[CMDR H] 8
    [CMDR K]"'BAYP
714 PRINT"[DOWN8,SHFT P]RESS <[SHFT S,
    SHFT P,SHFT A,SHFT C,SHFT E]
    [SHFT B,SHFT A,SHFT R]
    > TO END THIS SECTION."'BAOV
760 GOSUB 2000'BEDI
770 GET K$:IF K$=""THEN 770'EIIM
780 K=ASC(K$)'CFFL
790 IF K=32 THEN GOSUB 8000
    :GOTO 80'FKUP
800 I=0'BCRD
805 IF K=AS(I)THEN POKE SI,1
    :POKE SI+1,1'GQUO
810 POKE SI+4,16:IF K=AS(I)THEN POKE
    SI,LM(I+8):POKE SI+1,HM(I+8)
    :POKE SI+4,17'MPTU
815 GOTO 770'BDNJ
820 I=I+1'CDFG
830 IF I<=8 THEN 805'EFFI
840 GOTO 770'BDNH
899 REM TWINKLE STAR MELODY'BRBA
900 PRINT"[CLEAR,DOWN2,RIGHT6,SHFT T,
    SHFT H,SHFT I,SHFT S] [SHFT I,
    SHFT S] [SHFT T,SHFT W,SHFT I,
    SHFT N,SHFT K,SHFT L,SHFT E]
    [SHFT S,SHFT T,SHFT A,SHFT R]
    [SHFT M,SHFT E,SHFT L,SHFT O,
    SHFT D,SHFT Y] !"'BAYY
905 PRINT"[DOWN]([SHFT P]RESS <
    [SHFT S,SHFT P,SHFT A,SHFT C,
    SHFT E] [SHFT B,SHFT A,SHFT R]
    > TO END EARLY.)"'BANV
910 GOSUB 2000'BEDF
920 RL=1000:GOSUB 11000'CMBI
924 FOR I=1 TO 172'DFJL
925 IF D=-1 THEN 960'EFMN
926 POKE SI+4,16:GOSUB 1200
    :GOSUB 1220'EQKQ
927 GET K$:IF K$=" "THEN 960'EIQQ
928 NEXT'BAEN
960 GOSUB 2000'BEDK
970 PRINT:PRINT"[SHFT D]
    O YOU WISH TO HEAR IT AGAIN?
    (Y/N) ";'CCBV
980 GOSUB 3900'BENM
982 IF K$="N"THEN PRINT K$:DE=.5
    :GOSUB 7000:D=0:GOSUB 8000
    :GOTO 80'JAQY
984 PRINT K$:DE=.5:GOSUB 7000:D=0
    :GOTO 900'FTQW
999 REM TWINKLE STAR DATA'BPBB
1000 DATA 1,8,8,1,1,8,8,1,1,12,8,3,1,
    12,8,3,1,13,8,4,1,13,8,4,2,12,8,
    3'BKCE
1010 DATA 1,11,8,2,1,11,7,5,1,10,9,6,
    1,10,8,6,1,9,8,4,1,9,7,5,2,8,3,
    1'BJHF
1020 DATA 1,12,8,3,1,12,8,3,1,11,8,2,
    1,11,7,2,1,10,8,1,1,10,8,3,2,9,7,
    5'BLLG
1030 DATA 1,12,8,3,1,12,8,3,1,11,8,2,
    1,11,7,2,1,10,8,1,1,10,8,3,2,9,7,
    5'BLLH
1040 DATA 1,8,8,1,1,8,8,1,1,12,8,3,1,
    12,8,3,1,13,8,4,1,13,8,4,2,12,8,
    3'BKCI
1050 DATA 1,11,8,2,1,11,7,5,1,10,9,6,
    1,10,8,6,1,9,8,4,1,9,7,5,2,8,3,
    1'BJHJ
1060 DATA -1,0,0,0'BITA
1099 REM TWINKLE STAR HARMONIZED'BVPR
1100 PRINT"[CLEAR,DOWN2,RIGHT4,SHFT T,
    SHFT H,SHFT I,SHFT S] [SHFT I,
    SHFT S] [SHFT T,SHFT W,SHFT I,
    SHFT N,SHFT K,SHFT L,SHFT E]
    [SHFT S,SHFT T,SHFT A,SHFT R]
    [SHFT H,SHFT A,SHFT R,SHFT M,
    SHFT O,SHFT N,SHFT I,SHFT Z,
    SHFT E,SHFT D] !"'BAJS
1105 PRINT"[DOWN]([SHFT P]RESS <
    [SHFT S,SHFT P,SHFT A,SHFT C,
    SHFT E] [SHFT B,SHFT A,SHFT R]
    > TO END EARLY.)"'BANM
1110 GOSUB 2000'BEDV
1120 RL=1000:GOSUB 11000'CMBY
1130 FOR I=1 TO 172'DFJY
1140 IF D=-1 THEN 1160'EGDB
1150 POKE SI+4,16:POKE SI+11,16
    :POKE SI+18,16:GOSUB 1200
    :GOSUB 1260'IHUK
1152 GET K$:IF K$=" "THEN 1160'EJHF
1155 NEXT'BAEE
1160 D=0:GOSUB 2000:PRINT
    :PRINT"[SHFT D]O YOU WISH TO
    HEAR IT AGAIN? (Y/N) ";'EKDO
1162 GOSUB 3900'BEND
1164 IF K$="N"THEN PRINT K$:DE=.5
    :GOSUB 7000:D=0:GOSUB 8000
    :GOTO 80'JAQP
1166 PRINT K$:DE=.5:GOSUB 7000:D=0
    :GOTO 1100'FUHN
1199 REM READ TWINKLE STAR DATA'BTDS
1200 READ D,R1,R2,R3'BKSW
1210 RETURN'BAQV
1219 REM REM POKE TWINKLE DATA FOR
    MELODY'BCNN
1220 P1=LM(R1):P2=HM(R1)'CRSC
1230 POKE SI,P1:POKE SI+1,P2'DMNC
1235 POKE SI+4,17'CGOF
1240 DE=.45*D:GOSUB 7000'DLED
1250 RETURN'BAQA
1259 REM REM POKE TWINKLE DATA FOR
    HARMONY'BDWR
1260 P1=LM(R1):P2=HM(R1):P3=LM(R2)
    :P4=HM(R2):P5=LM(R3)
    :P6=HM(R3)'GDJR
1265 POKE SI,P1:POKE SI+1,P2'DMNK
1270 POKE SI+7,P3:POKE SI+8,P4'ENSH
1280 POKE SI+14,P5:POKE SI+15,P6'EPIJ
1290 POKE SI+4,17:POKE SI+11,17
    :POKE SI+18,17'GWWM
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Continued on page 89

by Chris Stoy

Magazine Article Cataloger

for the Commodore 64



GORDON KIBBEE

You're working on a great program and come across an almost unsolvable problem. Just as you are about to give up, you remember seeing a program in one of your magazines that does just what you need. There is just one problem, you can't remember which magazine it was in. Disappointment sets in when you look at the large pile of magazines sitting in the corner. Sure, you *could* look through each one, but that would take hours. If you only had a clue as to where it was. Now Magazine Article Cataloger gives you that clue.

Getting Started

The first thing you should do is type in the program and save it to disk. If you plan on cataloging a lot of articles, I suggest you put Cataloger on its own disk.

The Main Menu confronts you with nine different options. The first six are used when searching the catalog. Following is an explanation of what each option does.

Options one through six are more or less the same, the only difference is the thing being searched for. When you are asked what to search for, you don't have to type the entire name. This is useful when searching for an article with an extremely long name. A bonus when doing this is that the program will find every occurrence of what you typed. In other words, say you want to list all articles by John Public and John Doe. Entering John at the prompt for the author's name, and presto! all the articles by John Public and John Doe are listed along with every other John in the catalog. This feature works for all the other searching methods. If you are ever in doubt of what to do, just follow the instructions on the screen.

When a match is found, the data will be displayed on your screen, and you will be presented with three different options. Pressing C will cause the program to search for another match. Pressing P will send a hard copy to your printer *(Be sure your printer is set and on before hitting P!)* Pressing Q will stop the search and return you to the Main MENU.

When option seven is chosen the program will prompt you to enter the name of the magazine, date, article name, etc. Be sure that you enter all data the same way for each article. When entering MONTH/YEAR use the name of the month, i.e., December/1987. This makes it easier when searching the catalog. When entering the subject of the article, I use categories like: Game, Utility, Review, Feature, or Misc. You don't have to use these, you can use whatever you want. Just remember what you used and be consistent.

When entering data for a review, enter the author and the name of the company that published the program being reviewed. This way it is easier to find the review by typing the company that made the program.

After you are finished typing the data for an article, you will be asked if it is correct. If you answer N, then you will be prompted to re-enter the data. If you answer Y, then you will be asked if you want to add more data. A Y will start the whole process over. An N will save your data and restart the program.

Option eight allows you to edit the catalog. After you choose this option the screen will show the data for the first article in the catalog. If you wish to edit it hit the E key. Pressing C will continue searching the catalog, and Q will save the catalog and return you to the Main Menu.

When you edit an article, a blinking cursor will appear over the first data item. Type over the old data completely, do not leave any unwanted data to the right of what you just typed. The same rules apply here as they do when entering data for the first time. DO NOT enter more than one line of data. If you do, you will mess up the rest of your data. The only exception is when entering comments, which can be two full screen lines.

After you are finished editing, the data will be re-displayed. If you made a mistake, just hit E and re-edit the data.

Option nine will end the program if you enter Y at the prompt, otherwise you will be returned to the Main Menu.

Final Notes

To speed up the searches, all the data is kept in BASIC arrays that are defined in line 30. As written the program can hold 500 different articles. If you need more room, redefine the variable X in line 30 to a number higher than 500, then save a new copy of the program. If you get an OUT OF MEMORY ERROR? change X to a smaller number. If you need more space, change the name of the catalog file in the program to something else. It doesn't matter what, just so the name is less than 16

characters and a file does not exist on the same disk with the same name. When doing this, you must change the name in lines 60, 1030 and 1040. Then, resave the program under a different name.

Finally, Magazine Article Cataloger does not have to be used exclusively as an article cataloger. With a few changes, the program can be used to catalog anything from records and tapes to video cassettes and computer disks or just about anything else you can think of. So the next time you can't find that article or review, all you have to do is load up Magazine Article Cataloger and let it do its magic. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Magazine Article Cataloger

```
10 REM - SETUP -'BHVY
20 POKE 53281,0:POKE 53280,0
   :PRINT"[CLEAR,YELLOW,DOWN11]
   "TAB(14)CHR$(14)"WORKING"'FXMJ
30 CLR:DIM EF,E$,T,S,A$,A,OA,Q,EC,KE$,
   KE,MS$,FE'CMSI
40 X=500:S$=CHR$(13):DIM MT$(X),
   MI$(X),MA$(X),MP$(X),AA$(X),AT$(X),
   MC$(X)'EKIP
50 PRINT TAB(12)"[WHITE,DOWN2,SHFT L]
   OADING CATALOG..."'CDJI
60 OPEN 15,8,15:OPEN 2,8,2,"0
   :--CATALOG--,S,R"'COBK
70 GOSUB 90:IF EF<>62 THEN GOTO
   1120'GLGJ
80 CLOSE 2:MS$="[DOWN,SHFT C,SHFT R,
   SHFT E,SHFT A,SHFT T,SHFT E]
   [SHFT N,SHFT E,SHFT W] [SHFT C,
   SHFT A,SHFT T,SHFT A,SHFT L,SHFT O,
   SHFT G]":GOTO 720'DJPU
90 INPUT#15,EF,E$,T,S:RETURN'CNCI
100 REM - MAIN MENU -'BKQX
110 GOSUB 1470'BENW
120 PRINT TAB(15)"[DOWN2,SHFT M,
    SHFT A,SHFT I,SHFT N] [SHFT M,
    SHFT E,SHFT N,SHFT U,DOWN3]"
    :PRINT"[YELLOW,SPACE2]1. [SHFT C]
    HOOSE BY NAME OF MAGAZINE"'DEWP
130 PRINT"[SPACE2]2. [SHFT C]
    HOOSE BY MONTH/YEAR"'BAKF
135 PRINT"[SPACE2]3. [SHFT C]
    HOOSE BY NAME OF ARTICLE"'BAJL
140 PRINT"[SPACE2]4. [SHFT C]
    HOOSE BY AUTHOR'S NAME"'BABH
145 PRINT"[SPACE2]5. [SHFT C]
    HOOSE BY ARTICLE SUBJECT"'BAUM
150 PRINT"[SPACE2]6. [SHFT C]
    HECK ALL ENTRIES":PRINT"[SPACE2]
    7. [SHFT A]PPEND TO CATALOG"'CBLN
160 PRINT"[SPACE2]8. [SHFT E]
    DIT CATALOG":PRINT"[SPACE2]9.
    [SHFT Q]UIT"'CBSJ
170 INPUT"[DOWN3,UP,WHITE,SPACE2,
    SHFT E]NTER CHOICE (1-9)";KE$'BETJ
180 IF KE$<"1"OR KE$>"9"THEN GOTO
    100'GJBJ
190 KE=VAL(KE$):ON KE GOTO 200,280,
    360,440,520,600,700,830,630'EUOP
200 REM - NAME OF MAGAZINE -'BQJA
210 GOSUB 1470'BENX
220 PRINT TAB(7)"[DOWN2,SHFT S]
    EARCH BY NAME OF MAGAZINE"
    :Q=0'DFWI
230 INPUT"[DOWN2,WHITE,SHFT N]
    AME OF MAGAZINE[BLUE]";TM$'BEEF
240 GOSUB 1480'BEOB
250 Q=Q+1:IF Q>A THEN 1490'FKVG
260 IF LEFT$(MT$(Q),LEN(TM$))
    <>TM$THEN 240'GURK
270 GOSUB 1500:GOTO 240'CIVF
280 REM - MONTH/YEAR -'BMGH
290 GOSUB 1470'BENG
300 PRINT TAB(9)"[DOWN2,SHFT S]
    EARCH BY MONTH/YEAR":Q=0'DFDG
310 INPUT"[DOWN2,WHITE,SHFT M]ONTH/
    [SHFT Y]EAR";TM$'BEFD
320 GOSUB 1480'BEOA
330 Q=Q+1:IF Q>A THEN 1490'FKVF
340 IF LEFT$(MI$(Q),LEN(TM$))
    <>TM$THEN 320'GUFJ
350 GOSUB 1500:GOTO 320'CIUE
360 REM - NAME OF ARTICLE -'BPMH
370 GOSUB 1470'BENF
380 PRINT TAB(13)"[DOWN2,SHFT S]
    EARCH BY NAME OF ARTICLE":Q=0'DGTP
390 INPUT"[DOWN2,WHITE,SHFT N]
    AME OF ARTICLE[BLUE]";TM$'BEGM
400 GOSUB 1480'BEOY
410 Q=Q+1:IF Q>A THEN 1490'FKVE
420 IF LEFT$(MA$(Q),LEN(TM$))
    <>TM$THEN 400'GUVI
430 GOSUB 1500:GOTO 400'CITD
440 REM - AUTHOR'S NAME -'BOLG
450 GOSUB 1470'BENE
460 PRINT TAB(8)"[DOWN2]
    SEARCH BY AUTHOR'S NAME":Q=0'DFTN
470 INPUT"[DOWN2,WHITE,SHFT A]
    UTHOR'S NAME[BLUE]";TM$'BEDK
480 GOSUB 1480'BEOH
490 Q=Q+1:IF Q>A THEN 1490'FKVM
500 IF LEFT$(AA$(Q),LEN(TM$))
    <>TM$THEN 480'GURH
510 GOSUB 1500:GOTO 480'CICC
520 REM - ARTICLE SUBJECT -'BQCF
530 GOSUB 1470'BEND
540 PRINT TAB(8)"[DOWN2,SHFT S]
    EARCH BY ARTICLE SUBJECT":Q=0'DFJN
550 INPUT"[DOWN2,WHITE,SHFT A]
    RTICLE SUBJECT[BLUE]";TM$'BEPK
560 GOSUB 1480'BEOG
570 Q=Q+1:IF Q>A THEN 1490'FKVL
580 IF LEFT$(AT$(Q),LEN(TM$))
    <>TM$THEN 560'GUKP
590 GOSUB 1500:GOTO 560'CIBK
600 Q=0:REM - SEARCH ENTIRE LIST
    -'CVPH
610 Q=Q+1:IF Q>A THEN 1490'FKVG
620 PRINT"[CLEAR]":GOSUB 1170
    :GOSUB 1250:GOTO 610'EOPH
630 REM - QUIT -'BGSF
640 GOSUB 1470'BENF
650 PRINT TAB(18)"[DOWN2,SHFT Q]
    UIT"'CDHI
660 PRINT TAB(13)"[DOWN2,SHFT A]
```

```
    RE YOU SURE[BLUE]";:INPUT KE$'DIYN
670 IF LEFT$(KE$,1)="Y"OR LEFT$(KE$,
    1)="[SHFT Y]"THEN 69Ø'HRIQ
68Ø GOTO 1ØØ'BDAJ
69Ø POKE 53281,6:POKE 5328Ø,14
    :PRINT"[CLEAR,L. BLUE]"
    :PRINT CHR$(142):END'GYHS
7ØØ REM - APPEND TO CATALOG -'BRMG
71Ø MS$="[DOWN,SHFT A,SHFT P2,SHFT E,
    SHFT N,SHFT D] [SHFT T,SHFT O,
    SHFT SPACE,SHFT C,SHFT A,SHFT T,
    SHFT A,SHFT L,SHFT O,SHFT G]"
    :A=OA'CHIR
72Ø GOSUB 147Ø:PRINT TAB(11)MS$
    :A=A+1'FPCJ
73Ø PRINT"[DOWN2,YELLOW,SHFT E]
    NTER NAME OF MAGAZINE:[GREEN]"
    :INPUT MT$(A)'CHJO
74Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER MONTH/YEAR:[GREEN]"
    :INPUT MI$(A)'CHQN
75Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER TITLE OF ARTICLE:[GREEN]"
    :INPUT MA$(A)'CHXQ
76Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER PAGE OF ARTICLE:[GREEN]"
    :INPUT MP$(A)'CHRQ
77Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER AUTHOR'S NAME:[GREEN]"
    :INPUT AA$(A)'CHKR
78Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER ARTICLE SUBJECT:[GREEN]"
    :INPUT AT$(A)'CHRT
79Ø PRINT"[DOWN,YELLOW,SHFT E]
    NTER COMMENTS ON ARTICLE:[GREEN]"
    :INPUT MC$(A)'CHIV
8ØØ INPUT"[DOWN,YELLOW,SHFT I]
    S THIS CORRECT";KE$
    :IF KE$<>"Y"THEN A=A-1
    :GOTO 72Ø'IPHQ
81Ø INPUT"[DOWN,SHFT M]ORE DATA";KE$
    :IF KE$<>"N"THEN 72Ø'FLEL
82Ø GOSUB 1Ø2Ø:RUN'CFUG
83Ø REM - EDIT CATALOG -'BNKJ
84Ø Q=Ø:HM$="[HOME,DOWN6]"'CGFJ
85Ø GOSUB 147Ø:PRINT TAB(15)"[DOWN,
    SHFT E,SHFT D,SHFT I,SHFT T]
    [SHFT C,SHFT A,SHFT T,SHFT A,
    SHFT L,SHFT O,SHFT G]":Q=Q+1
    :IF Q>A THEN 99Ø'ISTY
86Ø GOSUB 117Ø:POKE 781,24:POKE 782,2
    :SYS 6552Ø'EXDP
87Ø PRINT"[WHITE,SHFT P]RESS [RED][
    [SHFT E]][WHITE] TO EDIT OR
    [GREEN][[SHFT C]][WHITE]
     TO CONTINUE"'BAKV
88Ø PRINT"[SPACE2]LISTING. [SHFT H]
    IT [L. BLUE][[SHFT Q]][WHITE]
     TO QUIT."'BAMT
89Ø GET KE$:IF KE$=""THEN 89Ø'EKYP
9ØØ IF KE$="C"THEN 85Ø'DGUG
91Ø IF KE$="Q"THEN 1ØØØ'DHUH
92Ø IF KE$<>"E"THEN 89Ø'EGXJ
93Ø FE=1'BDJH
935 PRINT"[HOME,DOWN22,SPACE2,SHFT T]
    YPE OVER THE OLD DATA WITH NEW
    THEN"'BAOX
94Ø PRINT"[SPACE2]HIT [YELLOW][
    [SHFT R,SHFT E,SHFT T,SHFT U,
    SHFT R,SHFT N]].[SPACE12]"'BAGQ
95Ø PRINT HM$:INPUT MT$(Q)
    :PRINT HM$+"[DOWN2]"'EOHN
955 INPUT MI$(Q):PRINT HM$+"[DOWN4]"
    :INPUT MA$(Q)'ERJT
96Ø PRINT HM$+"[DOWN6]":INPUT MP$(Q)
    :PRINT HM$+"[DOWN8]"
    :INPUT AA$(Q)'GVWS
97Ø PRINT HM$+"[DOWN1Ø]":INPUT AT$(Q)
    :PRINT HM$+"[DOWN12]"
    :INPUT MC$(Q)'GVOT
98Ø Q=Q-1:GOTO 85Ø'DHSO
99Ø PRINT"[CLEAR,RED,SHFT T]
    HERE ARE NO MORE ENTRIES."
    :FOR W=1 TO 2ØØØ:NEXT'FIVY
1ØØØ IF FE=1 THEN FE=Ø:GOSUB 1Ø2Ø
    :RUN'GMPY
1Ø1Ø GOTO 1ØØ'BDAU
1Ø2Ø REM - SAVE CATALOG TO DISK -'BTYA
1Ø3Ø PRINT#15,"SØ:--CATALOG--":EC=19
    :GOSUB 151Ø'DNQE
1Ø4Ø OPEN 2,8,2,"Ø:--CATALOG--,S,W"
    :EC=19:GOSUB 151Ø'DQLG
1Ø5Ø PRINT#2,A'BDEY
1Ø6Ø FOR Q=1 TO A'DDDB
1Ø7Ø PRINT#2,MT$(Q)S$MI$(Q)S$MA$(Q)
    S$MP$(Q)S$AA$(Q)S$AT$(Q)S$MC$(Q)
    S$'BITN
1Ø8Ø NEXT Q:EC=19:GOSUB 151Ø
    :CLOSE 2'ENYG
1Ø9Ø PRINT" [SHFT C]ATALOG SAVED.
    [SHFT P]RESS A KEY TO
    CONTINUE."'BAJO
11ØØ GET KE$:IF KE$=""THEN 11ØØ'ELHX
111Ø RETURN'BAQU
112Ø REM - GET CATALOG FROM DISK
    -'BUJC
113Ø INPUT#2,A$:A=VAL(A$):OA=A
    :FOR Q=1 TO A'HSCF
114Ø INPUT#2,MT$(Q),MI$(Q),MA$(Q),
    MP$(Q),AA$(Q),AT$(Q),MC$(Q)'BARJ
115Ø NEXT Q:EC=Ø:GOSUB 151Ø
    :CLOSE 2'EMRE
116Ø GOTO 1ØØ'BDAB
117Ø REM - PRINT LIST -'BLCE
118Ø SP$="[SPACE2]":PRINT"[DOWN2]"
    :PRINT"[SPACE2,SHFT M]AGAZINE
    :[YELLOW]":PRINT SP$MT$(Q)'EPLM
119Ø PRINT"[WHITE,SPACE2,SHFT M]ONTH/
    [SHFT Y]EAR:[YELLOW]"
    :PRINT SP$MI$(Q)'CKHL
12ØØ PRINT"[WHITE,SPACE2,SHFT A]
    RTICLE NAME:[YELLOW]"
    :PRINT SP$MA$(Q)'CKRD
121Ø PRINT"[WHITE,SPACE2,SHFT P]
    AGE OF ARTICLE:[YELLOW]"
    :PRINT SP$MP$(Q)'CKFF
122Ø PRINT"[WHITE,SPACE2,SHFT A]
    UTHORS NAME:[YELLOW]"
    :PRINT SP$AA$(Q)'CKOF
```

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At Fiorano, there are 44 sensors around the track, so you can compare segment times from lap to lap to determine your weak areas. Since your Ferrari is the only one on the track, you don't have to worry about avoiding or colliding with other cars. As you drive, the scenery (which is different at each track) moves quite smoothly, especially when the car takes turns. On a straightaway, however, the buildings and terrain to the front don't get larger as you approach them. One nice touch is that the view in your rear-view mirrors changes as you drive to actually reflect what is behind you. If you stray off the track, you are politely bumped back on.

Once you have practiced to your heart's content, you can pull off to the paddock and make final adjustments to your Ferrari.

Once you have practiced to your heart's content, you can pull off to the paddock and make final adjustments to your Ferrari. When you're satisfied, it's off to the races. Click on the area of the paddock with the trucks and off you go. A screen showing a map of the world appears with icons depicting the weather. A requester box comes up, and you can click on the track of your choice. A small jet plane then streaks across the map to whisk you to your destination. Each track has its own paddock area which looks identical from track to track. Information about the track you are at appears at the top of the screen, and you are advised whether the track is open or closed. If closed, you can still practice there, but the track will only officially open several days prior to the actual race. As the simulation begins in January, 1986, you might well end up at a track several months before (or after) the actual race. The date, however, can be adjusted from the Race Control Panel.

Each Grand Prix race has six distinct track sessions which are spread out over three days. These are documented in the manual. On the first day, session one (practice) starts at ten in the morning. Here you get the feel of the track. At two in the afternoon, the first qualifying session begins. How well you do here helps determine your starting position. The two sessions on the second day mirror the first. On day three, there is a 30-minute warm-up session in the morning followed by the actual race in the afternoon.

Each race is two hours or 310 kilometers, whichever is reached first. This encompasses from 45–90 laps, depending on the length of the course. Using the Race Control Panel, however, you can shorten the race to a more desirable length as your finger and wrist can get mighty tired after a while. These sessions differ from Fiorano as there are other cars on the track which, of course, make driving all the more difficult and treacherous. If you don't know what you're doing, you're likely to collide with another car very early on and end the race (and perhaps the season) right then and there. Most likely, the other cars will zoom out ahead of you and disappear into the sunset. If you're slow enough, eventually they will catch up with you and zoom past you again, although it's fun watching them in your rear-view mirror. If you manage to complete the race, your time and standing will be displayed and saved to your disk, so you can see how you fared at the end of the season. Now you can either return to Fiorano to adjust your systems and practice some more or proceed to the next race.

Ferrari Formula One is really two games in one. If you just want to have fun racing around the courses with a stock car, you can do just that. The course layouts are true to life, and although the diagrams of the courses in the manual show clear distinctions, they tend to feel alike while you are racing (a few more right hand curves here, a few more left hand curves there). If you want to take full advantage of the simulation, it's fun to tweak the various systems of your car and see the difference, although the ever-present Mauro will make you wonder whether you should contradict him at all.

The manual is complete but often hard to follow. Although Electronic Arts has sprinkled helpful notes liberally throughout the manual, the meaning of the graphs in both the Dyno Room and Wind Tunnel is never fully explained and to this day remains a mystery to me.

Viewed as an arcade racing game, *Ferrari Formula One* can keep you glued to the screen, your hand clutching the mouse, trying to negotiate hairpin turns and avoiding other cars and drivers who are clearly better practiced than you. But who knows, toward the end of the Grand Prix season, you just may work your way up to the pole position—with a little help from Mauro, of course.

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by Mark Jordan

Foolproof-Files

Explore the Commodore 128 in its powerful native mode. Some of the articles in this column may be technical, some not so technical—but we guarantee that they will spark your creativity.



ART BAXTER

Foolproof-Files is a program you need if: 1) you'd like an easy-to-use program loader that works on any and every disk, 2) you'd like an easy-to-use file loader that works within any program. It's the program I wish someone had written for me before I wrote ArcheType, a word processor published in *Commodore Microcomputers* in May/June 1986.

I was looking for a slick way to let the user load word processing files without having to type in the names (you know how easy it is to mistype). Even with the 128's convenient DIRECTORY command there seemed no easy way to turn those directory filenames into variables that I could manipulate.

Foolproof-Files does just that. It will read the directory (or a selective directory) and turn each filename into a subscripted variable. The files are then listed in a window centered neatly on the screen. The user simply cursors up or down to the file he wants, presses RETURN and the program (or file) loads and runs. If there happens to be more directory items than a single window can hold, no problem. The window scrolls its contents up and down.

The program isn't long, so type it in now. Use the Magazine Entry Program to make the job easier. Then save it to any and every disk you own.

Using Foolproof-Files as a Program Loader

Using Foolproof-Files is as simple as running the program. Computer pros like yourself will have no trouble using it. But don't stop there. Use Foolproof-Files to make gift disks that even the least computer-handy of your friends will be able to use easily.

There are two ways to make Foolproof-Files even more convenient as a program loader. One is to place Foolproof-Files as the *first* program in the directory. Doing so will allow the user to simply place the disk in the drive, press SHIFT-RUN/STOP and start cursoring. If you don't know how to place a file in the first slot on the directory, fear not. The Shell program that comes with the 1571 drive makes it easy. Place your 1571 Test/Demo disk in the drive, turn on your 128 and, after the Shell program has booted, slip whatever disks you have Foolproof-Files saved on into the drive, press F1, select Rearrange Files and follow the prompts.

The second way to improve convenience is to create a boot sector that automatically loads and runs the program when the computer is turned on with a disk in the drive. If you've never created a "boot disk" here's an easy way to do it.

Place your 1571 Test/Demo disk in the drive and DLOAD "Autoboot Maker." Take out the Test/Demo disk and place the disk with Foolproof-Files on it in the drive. RUN the program. When the computer asks whether you have a BASIC or binary file, choose BASIC. Then type in "Foolproof-Files" when it asks for the name of the program you want as a boot program, and the rest will happen automatically.

One sticking point remains: machine language programs. These are programs that must be loaded into memory-specific locations, you know, the ones you load with a BLOAD on the 128 or ,8,1 on the 64. The remedy is simple: write a boot program to load these. For example, if you have an ML program called "Grunt-Man" on a disk which you formerly had to load like this:

LOAD "Grunt-Man",8,1:SYS 49152

you can now simply turn that into a program by typing

10 LOAD "Grunt-Man",8,1:SYS 49152

Save the above with a name such as "Grunt-Man.boot." Now when the window of files comes up, cursor to this one and press RETURN to run the program. (See notes below on how to create a selective directory loader so that only run-able programs will show up in the window.)

Using Foolproof-Files as a File Loader

Incorporating this program as a subroutine within other programs is almost as easy. There are just a few things you need to know.

First, renumber whatever program you want this directory loader to appear in so that the first line number is 30 (or greater) and the last line number is less than 10000. Now type in Foolproof-Files (with the original program already in memory).

Foolproof-Files uses only variables beginning with the letter Z (such as Z1, Z1$, ZC, etc.), so as long as you don't have any Z variables in your program there's no problem. If you do have any, either change them to another name, or prior to GOSUBing to the Foolproof-Files subroutine, save all your Z variables then reset upon exiting.

Finally, delete lines 20 and 21.

Now any time you want your program to show the directory (and allow the user to select a file from it), simply include this line:

GOSUB 10270:GOSUB 10010

Upon returning from 10010 you'll have the name of the file that was selected in the variable Z$. You can then load it however you need to for your use. (For example, if it's a sequential file, DOPEN #2,(Z$) gets things started.)

One final note: the screen's contents are not saved when you use Foolproof-Files. If you want the window to be replaced with the original screen layout after calling this routine, you'll need to include your own screen routine (or use the screen-save routine published in this column in the February 1988 issue).

One more final note: if you want a selec-

Machine Language Directory Routine

```
-Entering the routine (fa,fb) points to string pointer
-(fc,fc) points to actual address of string
00c00 20 37 0c  jsr  $0c37  ;set file for input and set (fc)
                            ;to point to actual string addr
                            ;in bank 1
00c03 20 cf ff  jsr  $ffcf  ;get a byte from opened file
00c06 20 2d 0c  jsr  $0c2d  ;check status bit
00c09 b0 1a     bcs  $0c25  ;if carry set we're outta here
00c0b c9 22     cmp  #$22   ;now see if A is a quote (first
                            ;of 2)
00c0d d0 f4     bne  $0c03  ;if not go back and repeat
00c0f 20 cf ff  jsr  $ffcf  ;inside quotes, start getting
                            ;bytes
00c12 20 2d 0c  jsr  $0c2d  ;check status again each time
00c15 b0 0e     bcs  $0c25  ;if set must be end of file
00c17 c9 00     cmp  #$00   ;if chr$(0) this item is junk
00c19 f0 e8     beq  $0c03  ;so go back to start
00c1b c9 22     cmp  #$22   ;check if second quote
00c1d f0 50     beq  $0c55  ;if it is then end of dir item,
                            ;exit routine
00c1f 20 82 0c  jsr  $0c5c  ;else STASH A at (fc)
00c22 c8        iny         ;and inc Y offset
00c23 d0 ea     bne  $0c0f  ;and jump back for more
                            ;bytes

exit for end of directory

00c25 e6 fe     inc  $fe    ;set fe>0 to show directory is
                            ;done
00c27 a2 01     ldx  #$01   ;reset jchkin
00c29 20 c6 ff  jsr  $ffc6  ;(it has to be done)
00c2c 60        rts         ;exit

status bit check

00c2d 18        clc         ;clear flag
00c2e aa        tax         ;save A
00c2f a5 90     lda  $90    ;check status flag
00c31 d0 02     bne  $0c35  ;if st>0 then branch
00c33 8a        txa         ;get A back
00c34 60        rts         ;return with carry clear
00c35 38        sec         ;set carry if st>0
00c36 60        rts

setup input channel and point (fc) to string address

00c37 a2 02     ldx  #$02   ;select file number to
00c39 20 c6 ff  jsr  $ffc6  ;set current file for input
00c3c a0 01     ldy  #$01   ;now get second byte after (fa)
00c3e 20 4e 0c  jsr  $0c4e  ;which points to actual ad-
                            ;dress of string
00c41 85 fc     sta  $fc    ;which we'll store at (fc)
00c43 c8        iny         ;increment y offset
00c44 20 4e 0c  jsr  $0c4e  ;get next byte of address
00c47 85 fd     sta  $fd    ;finish preparation
00c49 a0 00     ldy  #$00
00c4b 84 fe     sty  $fe    ;fe=0 until directory is com-
                            ;pletely read
00c4d 60        rts

get byte from bank 1 at (fa),y

00c4e a9 fa     lda  #$fa   ;select zeropage address
00c50 a2 01     ldx  #$01   ;choose bank1
00c52 4c 74 ff  jmp  $ff74  ;get byte zp points to bank1
                            ;and return

reset jchkin to 1

00c55 98        tya         ;save Y
00c56 48        pha
00c57 20 27 0c  jsr  $0c27  ;reset jchkin
00c5a 68        pla         ;get back Y
00c5b 60        rts

stash routine

00c5c a2 fa     ldx  #$fc    ;point STASH to (fc)
00c5e 8e b9 02  stx  $02b9   ;store
00c61 a2 01     ldx  #$01    ;select bank 1
00c63 4c 77 ff  jmp  $ff77   ;STASH and return
```

tive directory, change the variable DR$ in line 10270 to whatever you want. For example, to list only the files starting with a "W.", change it to DR$ = "W.*" Be sure to include the asterisk (*) on the end as a wildcard.

What Made It So Hard?

I've done a lot of programming over the years, both in BASIC and in machine language. What made a program like this so difficult to do on the 128 was reading the directory in machine language and saving each filename as a variable. Sometimes meshing BASIC with ML gets tricky, especially due to the 128's banked variables.

For those of you interested in how the job gets done, here's a brief overview of the program logic. I've included a commented machine language disassembly for those who want to study it in even more detail.

The subroutine beginning in line 10270 opens the directory as a file. Starting with line 10300 the routine jumps into a machine language subroutine at DEC("0C00") which grabs the directory a byte at a time, finds the quotes, and turns what's in-between quotes (the filenames) into the variable Z3$. Upon exiting this ML subroutine the accumulator contains the length of the filename it has just found. That's why line 10300 has an RREG Z0 following the SYS command. This makes the variable Z0 equal the length of the filename which we will use in line 10320 to strip off excess characters from previous filenames.

The rest of the 10270 subroutine completes the process of turning all the directory items into the Z1$() array.

The other subroutine—10010—has a different task. It takes this array and prints it on the screen so that the user can cursor quickly up and down to find and load any file.

An idiosyncrasy of the 128 that you should know about concerns line-linking. It can cause the screen format to get messed up and add an extra line if you print to the right edge of a window. Line 10070 prevents this line-linking from happening with POKE 248, PEEK(248) OR 64. If you ever run into this problem, try this poke.

That's a brief overview. The commented source code gets into the nitty gritty. Study it to learn more. Whether you're a programmer or not, Foolproof-Files will make a handy addition to your disk collection.

Continued on page 80

Attention Programmers

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128 Mode/Foolproof-Files

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Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Foolproof-Files

```
10 Z3$="[SPACE18]":Z4$=Z3$:E$=CHR$(27)
   :J$=E$+"J"'GWCI
11 DIM Z1$(144)'BIFA
12 FOR ZZ=0 TO 101:READ AS
   :POKE 3072+ZZ,DEC(A$):NEXT'IWUI
13 DATA 20,37,0C,20,CF,FF,20,2D,0C,B0,
   1A,C9,22,D0,F4,20'BWSK
14 DATA CF,FF,20,2D,0C,B0,0E,C9,00,F0,
   E8,C9,22,F0,36,20'BWCL
15 DATA 5C,0C,C8,D0,EA,E6,FE,A2,01,20,
   C6,FF,60,18,AA,A5'BWBM
16 DATA 90,D0,02,8A,60,38,60,A2,02,20,
   C6,FF,A0,01,20,4E'BWNM
17 DATA 0C,85,FC,C8,20,4E,0C,85,FD,A0,
   00,84,FE,60,A9,FA'BWKO
18 DATA A2,01,4C,74,FF,98,48,20,27,0C,
   68,60,A2,FC,8E,B9'BWJP
19 DATA 02,A2,01,4C,77,FF'BRGK
20 GOSUB 10270:GOSUB 10010'CLNB
21 RUN(Z$)'BENA
22 REM DELETE LINE 21 TO USE WITHIN A
   PROGRAM'BGLJ
10010 ZW=11:SLOW:IF RWINDOW(2)=80
      THEN ZW=31:FAST'ITNC
10020 WINDOW ZW,4,ZW+17,21,1
      :POKE 248,PEEK(248)AND 191'FDDC
10030 PRINT"[RVS,GREEN]
      "LEFT$(Z1$(0)+Z4$,
      17)CHR$(27)"M"'ESPA
10040 FOR ZZ=1 TO 15:PRINT"[RVS,GREEN]
      [L. GREEN]"LEFT$(Z1$(ZZ)+Z4$,
      16)"[GREEN] ":NEXT'HWXF
10050 Z5$="[RVS,GREEN] [L. GREEN,
      SPACE16,GREEN] ":IF Z2>15 THEN
      Z5$="[RVS] [L. GREEN]
      ----- MORE -----[GREEN] "'FLCD
10060 PRINT Z5$:PRINT"[RVS,GREEN,
      SPACE19]"'CEYB
10070 POKE 248,PEEK(248)OR 64'DLSC
10080 WINDOW ZW+1,5,ZW+16,20
      :PRINT"[L. GREEN]
      "LEFT$(Z1$(1)+Z4$,16)'GENE
10090 ZC=1:ZT=1:ZD=ZC'DMNF
10100 DO:REM BEGIN DO LOOP'CMEV
10110 GET KEY ZZ$:IF INSTR("[UP,DOWN]
      "+CHR$(13),ZZ$)=0 THEN
      10110'IUOD
10120 IF ZZ$=CHR$(13)THEN EXIT'FHLY
10130 IF ZZ$="[UP]"THEN BEGIN
      :IF ZC=1 THEN 10240'HNUD
10140 ZC=ZC-1'CFYX
10150 GOTO 10200'BFXX
10160 BEND'BBXY
10170 IF ZZ$="[DOWN]"THEN BEGIN
      :IF ZC=Z2 THEN 10240'HOHB
10180 ZC=ZC+1'CFXC
10190 BEND'BBXC
10200 CHAR,0,ZD-ZT,LEFT$(Z1$(ZD)+Z4$,
      16),1'EAQB
10210 IF ZC<ZT THEN PRINT E$"W"
      :ZT=ZT-1'GMXB
10220 IF ZC>ZT+15 THEN PRINT E$"V"
      :ZT=ZT+1'HOKD
10230 CHAR,0,ZC-ZT,LEFT$(Z1$(ZC)+Z4$,
      16):ZD=ZC'FDKA
10240 LOOP:PRINT"[HOME2]"
      :Z$=Z1$(ZC)'DLKB
10250 RETURN'BAQX
10270 DR$="*":OPEN 2,8,0,"$:"+DR$
      :IF DS>19 THEN GOSUB 10380
      :GOTO 10340'IEEF
10280 Z5=POINTER(Z3$):Z3=INT(Z5/256)
      :Z4=Z5 AND 255:POKE 250,Z4
      :POKE 251,Z3'JPLK
10290 Z1=0'BDID
10300 DO:SYS DEC("0C00"):RREG Z0'EHJY
10310 IF PEEK(254)>0 THEN EXIT'FGXY
10320 Z1$(Z1)=LEFT$(Z3$,Z0)
      :Z1=Z1+1'EVDD
10330 LOOP'BAKW
10340 CLOSE 2'BBJX
10350 FOR ZZ=Z1 TO Z3:Z1$(ZZ)=""
      :NEXT'FPEF
10360 Z2=Z1-1:RETURN'DGID
10380 PRINT"[SHFT D]ISK ERROR!"
      :SLEEP 3:DCLEAR:RETURN'EGMD
```

END

Continued from page 46

or her Intelligence. You can spend these on Clip Pistol, Demolition, Bureaucracy and 23 other skills. When someone is promoted, he gets two "adventure points" that can be used to boost any of his attributes. If you add some to Intelligence, you'll be able to learn new skills or enhance current ones at the nearest Library, which is the game's equivalent of a Guild. Skills are also improved with use.

In most role-playing games, your characters' skills determine how effectively he performs related tasks. That is true here, but *Wasteland* also uses skills the way they're applied in a pen and paper RPG. When faced with a steep cliff, you must use your Climb skill. To do so, you press "U," pick a character, and punch "S" for Skill. Then you rap another key to indicate the direction in which you want to Climb.

In your travels you'll meet and can hire up to three NPCs, non-player characters who make many decisions (such as who to fire at in combat) for themselves. They might have clues that help solve various puzzles, too. But most clues are revealed in the scene's text descriptions, a character's text window (that offers a parser so you can type in a few words) or a separate booklet of over 100 numbered paragraphs to which the game refers you at certain points. The puzzles are unusual, often reminiscent of those in a text game. Many are the sort you can think through logically without having to map every square inch of a maze. (Mapping, in fact, is hardly necessary, although there are many towns, buildings and other areas to explore.)

Lots of puzzles have multiple solutions. If you don't know the safe's combination, a character's Safecrack skill might open it. Also, vital objects are often found in several places: I found two Sonar Keys, for example. And it's a good thing, because once you grab an object in this world, it's gone forever—you can't return and get it again or repeat an encounter to score extra experience points as with the Berserkers in *Bard's Tale*.

Most of the time you see an aerial view of the town or outdoors, but in combat you get a picture of the enemy and a text menu for making decisions (like *Bard's Tale*, also an Interplay production). Each party member can carry up to 30 items, from Uzis to LAW rockets and laser pistols. You can divide the group into several bands, (sometimes necessary to solve puzzles). The View command lets you switch to see another group, even if it's currently located in an area on another disk. (*Wasteland* covers both sides of two disks.) A handy utility lets you print all character stats and possessions.

This is one game I'm seeing through to the end. I like the way skills and character development are handled, and the story is original—more than just another "after the bomb" scenario. Part of the reason is that it was written by Ken St. André and Michael Stackpole, both well known in the realm of pen and paper role playing. Stackpole's prose is fresh and vivid, even in the scrolling combat reports. The puzzles, too, are a welcome change of pace from those encountered in typical role-playing games. From what I've seen this year, *Wasteland* is currently the front-runner for "Best Quest of 1988."

Incidentally, this and *Bard's Tale III* are the last Interplay games that will be marketed by Electronic Arts. Interplay is now publishing its own software, distributed by Broderbund. Their first independent release will be an Amiga strategy game; the next will be a 64 RPG based on the science fiction novel *Neuromancer*. ■

Amiga Software Reviews/Fire Power

Continued from page 38

alike. So as men come scrambling out of a pile of smoking rubble you have to quickly determine which are enemy troops and which are on your side. If you delay too long, the enemy troops may get away. But if you shoot too soon you could hit your own troops. If they are friendly troops, it is your duty to wait for them to climb on board your tank and rescue them. Rescuing troops presents still another challenge. If you move too quickly you may run over your own men, but if you delay too long your tank may come under enemy fire or helicopter attack. Dozens of features and actions like these establish new standards that other arcade designers and programmers will be hustling to match. All this is done using beautifully sculptured graphics, digitized sounds and real-time speed.

I wouldn't be earning my money if I couldn't find something about the game which I didn't like. Here's my complaint—explosive mines. Each tank carries and can plant mines which will be activated when your opponent gets too near. These are seeded by a particular sequence of joystick movements—you stop the tank, press the fire button and shift into reverse. If all goes well, a grey cylinder with a dark triggering button appears on the ground. You can plant these around your headquarters' flag (your opponent's target), and around gates or breaches in your defense walls.

If done right, mine fields can greatly increase your defenses and frustrate your opponent. But I've found they destroy my tanks more often than my opponents'. I have never quite mastered the command sequence. I usually drop a mine by accident in the heat of maneuvering and end up blowing my own tank off the map rather than my enemy's. I would have preferred a keyboard command (like press M to drop mine) rather than the dangerous joystick signal. Another complaint is that there is no way to diffuse a mine (even cannon fire will not destroy them) without touching it.

Hopefully, any new releases of *Fire Power* will either reroute the "drop mine" command or simply remove mines from the arsenal of weapons. Still, on a scale of one to ten, I would give *Fire Power* a 9.5. It is a top-notch game at an affordable price. It has earned a permanent slot on my software library shelf. ■

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by Matthew Leeds

Video Editing

We've all seen scenes of video editing suites. The editor has a control panel in front of him that looks like it could be used to maneuver a 747, and images on half a dozen monitors compete for attention. Several hundred thousand dollars worth of hardware is rack mounted on the walls; the overriding feeling is *expensive*.

Video editing can be a costly endeavor, but it doesn't have to be. You can get results from acceptable to excellent with home equipment and a shoestring budget. It is, however, important to understand the basics of editing before you begin.

Video tape recording got its start in the fifties as a spinoff of the audio tape recorder. Preliminary research had shown that some means had to be devised to handle the higher information density that video required. At first researchers tried speeding up the rate at which tape passed the recording head. At one point an early RCA prototype ran tape at 30 feet per second, using up over a mile of tape to record four minutes of material.

Ampex solved the problem by designing rotating recording and playback heads that increased the density of information on the tape while keeping tape speeds reasonable. In 1959 Toshiba introduced helical scanning heads, the technology used in VCRs today.

The helical scanning head works by recording a full field of video as a single slanted video track running across the videotape (See Illustration 1). The video track is almost four inches in length; this is accomplished by wrapping the videotape around the head drum just over halfway (See Illustration 2). Each head drum has two recording heads, and each head records a video field at a time. The fields are interleaved on the tape just as they are when displayed on the screen.

Additional information is also recorded on the videotape. Audio tracks are recorded by separate linear audio recording heads, and a control track of magnetic pulses spaced at even intervals is placed at the bottom of the tape. The control track is used to tell the VCR the location of each frame of picture information.

Take another look at Illustration 2. Notice the location of the bulk erasehead. It is located separately from the video recording heads. It is used to erase everything on the videotape, and it does so as the tape passes by it. Since it does not rotate, it erases not on a diagonal (the way the rotating video heads record) but perpendicularly to the tape direction. This results in video tracks at the start and ending points of erasure that have been only partly erased (See Illustration 3).

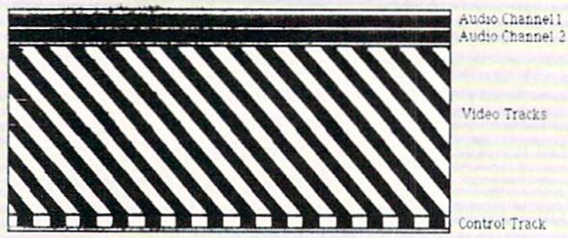


Illustration 1

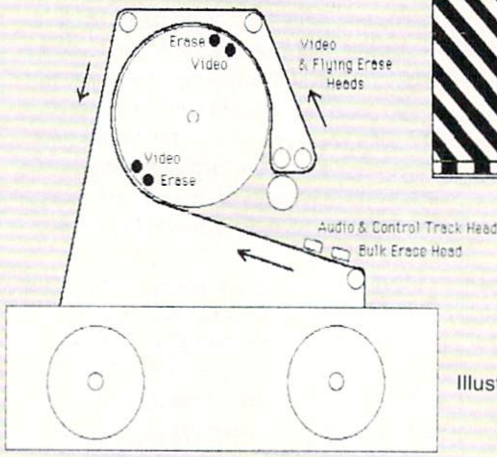


Illustration 2

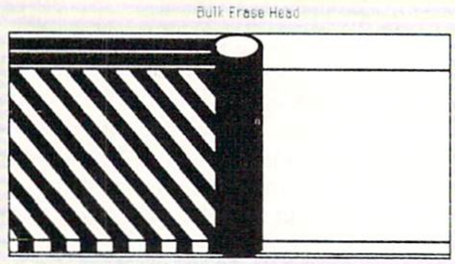


Illustration 3

Several companies have announced hardware and/or software that will let the Amiga act as an edit controller.

The video sync signals that are a part of the video information are disrupted by the partly erased video tracks. If your VCR does not recreate the exact sync start point when it rerecords over the erased portion you will get a "glitch." You will also get a glitch if you record video over video. Since most VCRs back up slightly when you pause while recording, and the bulk erase head is too far away from the recording heads to erase the portion of the tape backed up, you get a glitch. You can also get a glitch if the control track is not contiguous.

All of these problems can be solved by using a VCR that has flying erase heads. These are video erase heads that are on the rotating video drum along with the recording heads. These flying erase heads erase only the video tracks, and do so in the same diagonal pattern in which they were recorded. No backspacing is required, and the edits are more accurate.

Flying erase heads can be found on many 8mm video systems, some high-end Beta systems, and on at least one VHS system, the Panasonic AG1950. Some VCRs that do not have flying erase heads offer a feature called video insert or video dub. This feature turns off the bulk erase head and records directly on top of the existing video signal by applying a stronger recording signal to overwrite the existing information. This can only be used once, as the stronger signal used to overwrite the first signal cannot be overwritten itself.

The simplest form of editing requires a single VCR with record capability, and a playback VCR. You connect your recording VCR to the playback VCR, connect a monitor to the playback VCR, and put the video cassette that contains your original tape into the playback VCR. Roll the tape to the first scene you want to dub to your recording VCR (make sure you have a blank tape in it), pause the tape, put your

recording VCR into record and pause simultaneously, then take both VCRs off pause at the same time. Put the recording VCR on pause when you've recorded all of the first scene. Now find the next scene you want on your playback VCR, pause it, then start both VCRs at the same time again.

Although this will work, it's a lot of work, and the edits will not be clean. Since VCRs have moving parts (the tape transport) it takes a few moments for them to come up to speed. The playback VCR will not be producing a clean signal until it gets up to speed. It would be better to start the playback VCR rolling, wait until the new scene just starts and then start the recording VCR. This is called preroll.

This would all be much easier if it were automated. That is, if there were some way to control the playback and record VCRs without having to manually start and stop them. There is a way by using a device called an edit controller. The edit controller plugs into both VCRs and lets you set up edits from a single keyboard. Edit controllers let you monitor tape position both from the scene displayed on the preview monitor and via a numeric readout of the control track. Most VCRs have a Control L jack on their back panel that interfaces to an edit controller.

Some edit controllers can store a series of edits and perform them sequentially. These editors store an edit list of the beginning and ending points of scenes you want to assemble on an edited tape. Once you have set up your edit list by previewing each scene and queuing the edit controller, the edit controller will assemble your edited copy automatically. If you want to change an edit or a sequence of edits, just change the edit list and let the edit controller re-assemble a new edited copy.

Several companies have announced hardware and/or software that will let the Amiga act as an edit controller. Prism Computer Graphics, Mimetics, and Interactive MicroSystems are some of the companies that either have products on the market or are about to release products.

Edit controllers and edit lists are only as accurate as the control information they use. Simple edit controllers use the control track laid down by your VCR. This is just a simple set of pulses with no numeric indexing information. If the VCR loses count of a control pulse, the indexing becomes inaccurate.

To better understand control track information and how it is used, we need to look at the difference between VHS, Beta, and 8mm videotape systems. The important difference is in how the tape is handled during rewind and fast forward. In VHS systems the tape is unwound from the video drum during fast rewind or fast forward. This causes loss of contact with the control head and loss of control pulse count. Beta and 8mm systems do not unwind the videotape from the video drum and therefore maintain a consistent control pulse count.

> You can create some simple transitions with a single playback deck and your Amiga equipped with a genlock.

A new VHS system called Quick Start has been introduced that does not unwind the videotape from the video drum. Originally introduced by Akai, Quick Start is likely to migrate to all S-VHS systems soon. Along with Quick Start a new indexing system introduced by JVC, called CTL, will add the ability to find up to 9,999 designated addresses on a tape. These addresses are coded directly in the control track and do not require counting control pulses to find an address. The CTL system will also allow for a real-time readout in hours, minutes and seconds instead of just looking at the tape counter.

Professional editing systems use a control system called SMPTE Time Code. SMPTE encodes a unique identification for every frame of video. This lets an editor find the exact edit point without counting control pulses; it also allows an edit list to be constructed without using the same editing equipment required to actually perform the edits. Access to high-end editing systems is billed in the hundreds of dollars per hour, and preparing edit lists off-line can save quite a bit of money.

Up to now I've discussed a "simple cuts only" setup. Each scene cuts to the next without any type of transition effect. You can create some simple transitions with a single playback deck and your Amiga equipped with a genlock. Use a paint program that supports overscan and color cycling to create a full screen pattern that will cycle from a solid screen of color 0 to some other color. Color 0 is the color that your live video will replace. By playing your source deck through the genlock and starting the color cycle when you want to create your transition effect you can wipe from live video to some color or pattern. This technique will not let you wipe from one video source to another, but it will let you create some interesting and beautiful transitions.

You can also create simple transitions by just fading to black in the camera at the beginning and end of each scene when you film your original tape. If you want to wipe from one live video source to another you will need some additional equipment. This type of edit is called an A/B roll. You will need a second source deck, a genlockable dual channel time base corrector and either an edit controller or switcher that can do A/B rolls. We are talking about a large investment here, and not one that a non-professional is likely to make.

If you are interested in this kind of capability you should consider renting editing equipment. There are fully equipped editing bays available for rental in most large cities. A full-blown A/B roll editing bay for 1/2 inch videotape can be rented for as little as $30/hour. Standard-cuts-only bays are available for as little as $12.50/hour from Video Workshop, a franchise service organization rapidly expanding across the U.S.

Regardless of the equipment you use, there are problems that occur in multigenerational videotapes. Every time you copy a tape the new generation will have less color saturation, less sharpness and resolution and less definition. There is nothing you can do to completely prevent this from occurring, but you can minimize the losses. Most VCRs boost the video signal on the videotape during playback. This improves the image on your monitor or TV, but it can overload your recording VCR during editing. Newer VCRs have a switch that turns off this equalization, called an edit or dub switch. There are video enhancing boxes that can correct color balance, improve sharpness or otherwise attempt to minimize generational loss. It is important to remember that every piece of equipment that your video signal passes through will cause some loss of some portion of the video information.

You can achieve the best results by using high grade videotape, recording and editing onto either brand new tape or only slightly used tape, recording and editing at the fastest speed your VCRs will support, and keeping the number of generations to a minimum. If you want to gain access to professional-level editing equipment without paying professional prices, consider taking a video editing class at your local college. ■

by Graham Kinsey

Amiga Public Domain Update



ED SAUK

Finally Fred Fish has returned to the Amiga PD scene, with the release of Fish disks 129-138. (It's nice to have you back, Fred!) As for the pick of the litter this month, there has been an important update to VirusX, the premier virus detection program. Also reviewed this month are OverScan, which allows European Amiga owners to strike back against American programmers who don't allow for PAL screens, and Evo, an educational program about the history of man.

For each program, the author is given (when known) along with the series number if that PD program is available on the Fish series. Also if I get a PD program directly from PeopleLink's AmigaZone, I list the AmigaZone download file number, so those of you who have access to PeopleLink can quickly obtain this file. (If no file number is given, the program may still be on PeopleLink, but I obtained it somewhere else.) When a public domain program has been classified as shareware, this is also mentioned with the suggested amount.

Evo: by Steve Bonner (Fish 130)

An interesting educational program that shows the development of man and his ancestors over the past 20 million years. Nine different species are discussed in informational text files. Accompanying each text file is a simple line drawing of each species' skull, showing the cranial differences.

What is really nice about this program is that an interactive time-line is included. The user can move a slider anywhere on the time-line, and a cranial drawing will be displayed for the current time (over 600 drawings are programmed into the program).

Also included in the program is a glossary which explains some terms used in the text files, as well as a map of Africa with noted locations of different archaeological sites mentioned in the text files.

Hp: by Steve Bonner (Fish 130)

Another button-filled RPN (postfix notation) calculator program for those who are always looking for a better desktop calculator. Hp displays two numbers at a time in its display window (or in case of a complex number both the real and imaginary parts at once). In addition to complex numbers, Hp also supports binary, hexadecimal, octal and decimal numbers as well as floating point numbers. There is an option to send all calculator I/O to the printer. Hp opens its own screen instead of using the Workbench screen, so those who don't like constantly flipping between screens may not like this one very much.

QMan: by Steve Bonner (Fish 130)

QMan is a simple Mandelbrot generating program that isn't loaded with features, but it's written in assembly language. The speed increase may be enough for some to prefer this program over other Mandelbrot generators with more features.

Dfc: by Tomas Rokicki (Fish 131)

A nice little diskcopy program. Dfc has an Intuition interface, although you can specify all parameters from CLI so that you don't have to fiddle with gadgets if you don't want to. Dfc will make multiple copies of a disk and will cache a source disk (if you don't have enough free memory to cache an entire source disk, Dfc will still cache part of the source disk). Dfc also formats disks in addition to copying disks. And, of course, Dfc has a switch to verify destination disks, like any decent diskcopy program should have (hint, hint, Commodore!).

Mackie: by Tomas Rokicki (Fish 131)

Another screen blanking program (this one is based on PopCLI III). Mackie entertains you by drawing hi-res moire patterns when the screen is blanked.

Berserk: by Leo Schwab (Fish 132)

This stunning animation was already reviewed in the February 1988 installment of this column. However, in addition to the animation itself on the Fish disk lies all the source code (i.e., the object descriptions). This not only allows those who own *VideoScape 3-D* to create their own variations of Berserk, it also allows you to figure out exactly how Leo accomplished everything (for example, how he made the Boing balls compress when they were struck by the unicycle).

Crc: by Dan Kindred (Fish 133)

This program will generate a 16-bit CRC (Cyclic Redundancy Check) for any disk file. This allows you to check to see if a file has been modified since it was last checked. This program will *not* allow you to check for the presence of a boot-block virus, but it can help you to find a virus that attaches itself to the end of a program. (This type of computer virus currently doesn't exist on the Amiga. However, this is the way viruses on most other computers are spread, so at least you have a way to check for such a virus if one shows up.)

OverScan: by Ari Freund (Fish 133)

If you're a European Amiga user who is frustrated by American programmers who don't take PAL screens into account when designing programs, now you don't have to be stymied by their short-sightedness. OverScan will force any application to open screens that expand to the full size of a PAL screen. Windows that are attached to this screen won't automatically be resized, however, now they can be resized to take up the full size of a PAL screen. Note that this doesn't mean that an application will now actually intelligently use the extra area for program operation. (If the program doesn't bother to find out how big the screen really is in the first place, OverScan can't force a program to find out for itself.) Although this program was designed with European

PAL systems in mind, it is just as useful for Americans who are using MoreRows.

BoingThrows: by Marvin Landis (Fish 134)

This is a stunning *Sculpt 3-D* animation of a ray-traced figure shooting free throws. The author improved each of the frames by touching up the graphics with *DigiPaint,* and the results speak for themselves. Accompanying the great HAM graphics are some good digitized sounds.

I would have reviewed this program months ago when I first received it from PeopleLink, however, I couldn't get it to work. This is not the animation's fault, but as I found out instead, Byte by Byte's Movie player program for *Sculpt* animations is a real pain in the neck. For example, if you are using MoreRows, an animation that isn't created using overscan simply won't run. When you upset Movie the results can be quite frustrating. Not only does this program have a knack for crashing when not treated right, but it also holds the dubious distinction of being the one program that even GOMF 2.0 can't recover from after a system reboot.

Find: by Rodney Lewis (Fish 134)

This program, which is similar to the Unix Find program, is superior to the AmigaDOS DIR command. In addition to supporting Unix-style wildcarding, Find will list files that are a certain age, files that have certain protection bits (the r, e, w or d bits) set, or files that are a certain size. Find will also allow you to execute a command acting on each file that matches the particular wildcard or other boolean expression (the command execution can be automatic, or it can query you for execution on each candidate file). Find supports multiple devices, so you can search for files on multiple floppy drives, for example. Since each expression is a boolean, you can search with boolean expressions using NOT, AND or OR, in addition to a simple match.

Library: by Bill Brownson (Fish 134; Shareware: $30)

This is a demo of a quasi-database text-utility program that allows you to perform searches inside a text file. It allows for AND, OR or NOT boolean expressions to search for a text string inside a file.

SmartIcon: by Gauthier Groult (Fish 134; Shareware: $15)

This is for those of you who wished you could use the nifty feature provided by Leo Schwab's Iconify program (reviewed in the May 1988 installment of this column), but don't know how to program. Gauthier's SmartIcon allows you to add a gadget to any window that when selected will "iconify" that window. Even better is the fact that the icon appears not at the corner of the screen, but inside the RAM disk icon on the Workbench screen. And yes, just like Leo's program, SmartIcon will actually display graphics inside the iconified window (for example, the old Dotty and Lines demos on the Workbench disk).

TeXF: by Ali Ozer (Fish 135)

Are you looking for more fonts to use with your graphics programs? Well, TeXF is a program that will convert *AmigaTeX* fonts to the standard Amiga fonts format. What if you don't own *AmigaTeX* in the first place? Well also on this disk are a total of 78 *AmigaTeX* fonts (22 fonts in different sizes). And if you know someone who does own *AmigaTeX,* you can now obtain over 1000 different fonts to freely use with your own programs!

Paste: by David Ihnat (Fish 136)

This is a port of the UNIX Paste command. Paste merges text files, but instead of working with whole text files at a time, Paste works with individual lines from each text file.

Ct: by Jonathan Harman (Fish 137)

This program will display images from CT medical scanners (which are stored as 256×256 pixel images in 2048 shades of gray). Many features are provided including zooming, color mapping and many image processing operations.

VGad: by Stephen Vermulen (Fish 137)

This is a nice tool for commercial programmers who would like to farm out design of icons to artists and quickly convert the finished work into C source code. VGad accepts an IFF picture instead of an IFF brush (which saves a little work). VGad takes as input two IFF pictures, one for the normal icon state and one for the alternate image (selected state), and outputs a C source file and a C header file.

VLabel: by Stephen Vermulen (Fish 137)

If you would like an easy way to print fancy disk labels, check out VLabel. VLabel will print any two-color IFF picture in addition to up to 50 lines of text. The text may be printed using any font that is available. The text file can be in the form of a *Superbase* database ASCII file.

AmigaLine: by Bryce Nesbitt (Fish 138)

Here is a set of small but still quite informative text files relating to various programming topics. Covered subjects include multiple serial ports, figuring out the current stack size, getting input from the keyboard and calculating AmigaDOS hash values.

Grocery List: by Hal Carter (Shareware: $10)

For those who would like their Amiga to help plan a trip to the supermarket, Grocery List is a powerful program that does more than just allow you to print a selection of items that you need to pick up this week.

Half-OS: by Leo Schwab (AmigaZone file #11387)

A cute *VideoScape 3-D* animation which is a "play on words" concerning the much hallowed (and cursed) operating system OS/2. Maybe this animation will make people think twice about naming products in order to assure that such jokes can't be made . . .

MMade: by Keith Doyle (AmigaZone file #11233)

This is Machine Made, a wacky 50s-style animation created with *The Director.*

Access! version 1.30a: (AmigaZone file #11351; Shareware: $25)

Version 1.30a of Access!, a 16-color terminal program last reviewed in the May 1988 installment of this column. New features in this version of Access include a line editor in chat mode, an overall 25% speed increase in file transfer rate and a limited script capability. Now you can also choose to use only four colors with Access! This is a nice feature for those who don't care about pretty colors and just want to get down to business, since it speeds things up as well as saving 22K of CHIP RAM.

Please note that I am reviewing revision A of Access! version 1.30. This version fixes a major bug in the Xmodem protocol that made it very tough to download successfully using standard Xmodem. If you download this program from a BBS make sure to get Access! version 1.30a. Improvements have been made to the CompuServe B protocol. As usual there are many other small improvements.

Pyro: by Steve Jacobs and Jim Boyd (AmigaZone file #11290)

If you weren't impressed with the graphics entertainment provided by

Mackie, then give this screen-blanker a try. Pyro entertains you with a fireworks display (sorry, no sound yet). Unfortunately the blanking interval with this program is fixed at five minutes.

BadMax: by Mike Jones
(AmigaZone file #11366)

If you like the "Road Warrior" series of movies and like to put down other computers, this animation will suit you just fine. BadMax has sound effects and was created with *The Director*. Note that the author requires that you obtain an older version of the sound.mod file that usually accompanies *The Director's* Projector player program, since the animation will not run correctly with the newest version. The author claims he uploaded the old sound.mod file to PeopleLink, although I couldn't find it myself. (I just grabbed it from an older *Director* animation.)

Battleship: by Steve Berry

An Amiga version of the classic strategy game Battleship, complete with great digitized sounds. This program was written in Multi-Forth. This version has a major bug in that you are not actually forced to put the different parts of each ship next to each other, so in effect you can have five aircraft carriers with a length of one square instead of one carrier that is five squares long.

BitPlanes: by David Pochron
(AmigaZone file #11283)

Would you like to have as many colors as possible in your Amiga environment? Does the four-color Workbench bore you a bit? With BitPlanes you can easily transform the Workbench environment into an eight- or even 16-color screen. The author advises against using a four-bitplane Workbench, since the system slows to a crawl, and many icon editors will only work with a maximum of three bitplanes. The author provides a few eight-color icons to get you started, as well as a 16-color icon to look at (the "Lauren" girl who was made famous in the first set of DigiView demo HAM pictures back in early 1986).

CVRA: author unknown
(AmigaZone file #11230)

This is an AmigaBASIC program that determines cardiovascular risk. It asks you many questions, including blood pressure, stress level, family histories of diabetes and heart disease, cholesterol level and exercise activity. CVRA will then make an estimate of how vulnerable you are to cardiovascular disease and give suggestions to reduce your risk depending on your particular circumstances.

DFilter: author unknown
(AmigaZone file #11149)

If you own or have access to any pictures created or modified with either *Photon Paint* or *Pixmate*, this program can save you some grief. Although these programs do save pictures in the standard IFF ILBM format, they save certain chunks in strange ways that can cause havoc with many IFF ILBM viewing programs. DFilter will reorganize the chunks in such an IFF ILBM file, so you can freely display the picture with any display program.

Type: by John Gerlach Jr.
(AmigaZone file #11281)

Even though you use a computer to type with now, do you still miss your typewriter? Type will allow your printer to emulate a typewriter. Typewriter allows you to switch between "computer" and "typewriter" modes freely. (**WARNING:** when loading this program my error handler (GOMF 2.0) reports that Type attempts to trash the low area of system memory. Therefore, use this program *at your own risk.*)

VirusX version 1.21: by Steve Tibbett
(AmigaZone file #11298)

This is VirusX version 1.21, a *very* important program to have, since it is currently the best program available for detection and now removal of Amiga bootblock viruses. This version is an update to the version of VirusX reviewed in last month's column.

The only improvement in version 1.21 of VirusX is that it now specifically checks for the malicious Byte Bandit virus. This is a new virus with no relation to the SCA Virus reported on in the June 1988 installment of this column. The Byte Bandit virus makes the SCA virus look like an angel in comparison. First of all, although the Byte Bandit virus lives in the boot block just like the SCA Virus, the similarities end there. The Byte Bandit virus does not require a warm or cold start to enter your machine: as soon as you insert a disk with the Byte Bandit virus, it will immediately install itself inside your Amiga. Also the Byte Bandit virus does not require a warm boot in order to spread: any time you insert a disk into a drive, the Byte Bandit virus in memory will automatically attempt to write itself to that disk.

If this weren't bad enough, if you use the AmigaDOS INSTALL command to eliminate a copy of the Byte Bandit virus on a disk, the copy in memory will immediately re-write itself to the disk that you just INSTALLed.

This virus can truly be called destructive, unlike the SCA virus which was not meant to be harmful. The Byte Bandit will periodically lock up your machine, causing you to reboot your Amiga (and although I haven't been infected with this virus myself yet, I suspect that GOMF 2.0 will not be able to save your system from a reboot.).

Enough of the bad news, here's the good news. Not only will VirusX 1.21 tell you if you have a disk infected with a copy of the Byte Bandit virus, but VirusX will also eliminate any presence of the Byte Bandit virus in memory, which must be done if you want to completely purge it from all your disks. I can't overemphasize that this program is one that every Amiga user *must have.*

FixVDK: by Dan James
(AmigaZone file #11418)

This program fixes some bugs in the commercial recoverable RAMdisk program *VDK* from Expansion Technologies. Among the bugs fixed are improper date setting, improper reporting of block size, and destroying protection bits for each file.

Unfortunately I wasn't able to review all the programs I received off of PeopleLink's AmigaZone this month due to time constraints, but I will catch up next month on the ones I missed.

As always, I can be reached on the Amiga Zone on PeopleLink (ID: G KINSEY), or on the IDCMP BBS (617) 769-3172 *(please note the new number!)*, now running 24 hours a day, addressed to SYSOP. If you have written a public domain/shareware/freely distributable program, or have obtained one that you think is worth mentioning to all Amiga owners, then please attempt to contact me via the above or through *Commodore Magazine*. See you next month.

Fish disks: For a catalog, send a SASE and four loose stamps or $1 to: Fred Fish, 1346 W. 10th Place, Tempe, AZ 85281.

To sign up to PeopleLink and their AmigaZone, call (800) 524-0100 (voice) or (800) 826-8855 (via modem).

by Tim Jones

AmigaBASIC Tutorial

From time to time, I am challenged about my use of AmigaBASIC for various serious projects that I may be undertaking on the Amiga. And one of the biggest complaints that I hear is something in the order of ". . .but AmigaBASIC hogs the CPU while you are running an application and really cripples the multitasking of the machine." Well, there are ways around this. In this installment, let's take a look at a simple function that keeps your AmigaBASIC application from hogging the Amiga's CPU: SLEEP.

While working with some business software recently, I was bothered by the time I was wasting waiting for a document and a couple of spreadsheet pages to print. I knew that printing a document or spreadsheet to disk or RAM: would be a lot faster than to the printer, but I had to find a program that would run in the background and watch for files and then print them if they existed.

I started browsing my public domain disks for a printer spooler, a program that would control the printing of files in the background while I used my computer for other tasks. The ones I found, however, were generally no more effective than using the AmigaDOS JOIN command. This meant I had to move out of my word processor or spreadsheet and enter a command like:

RUN SPOOL file1 file2 file3 etc.

This wasn't exactly helpful, so I decided to take a look at writing one. The key features that I had to keep in mind were how to keep track of the files to print and how to prevent the spooler from printing a file a second time without actually deleting it after the first printing. Also, the spooler had to use a minimum of CPU time to make it friendly to other programs in a multitasking environment.

The first situation could be answered by placing all of the files to be printed into a specific directory and then monitor that directory for the existence of files. This one should be easy enough; just look into the specified directory once in a while and print any file that was there.

FIRST CATCH! When I sent the first test file to the directory, my spreadsheet also created a .info ICON for the printed file, which the spooler then tried to print, really spoiling my evening. The printer locks up, and eventually I am greeted by the nefarious GURU. Okay, let's try a specific extension for the filenames, then. To keep things simple, I chose ".PRT". Therefore, all files to be printed had to have ".PRT" tacked onto the end. It worked, the .info files didn't get printed!

Next, how could I stop the files from being reprinted? Renaming would be the simplest answer (who knows, I *might* want the file again), so I chose ".DONE" as the new extension. Well, I had been doing things in straight BASIC before, but realized that to change the extension of a file was asking for trouble. Since BASIC doesn't directly support wildcarding, I had to move back to a library environment and use the AmigaDOS function Execute() to perform the renames via AmigaDOS, instead of AmigaBASIC.

To use Execute() from AmigaBASIC, you must open the DOS library via the dos.bmap file that should be on your EXTRAS disk in the BasicDemos directory. Place this file (and any other .bmap files for that matter) into the LIBS: directory of the SYS: disk that you use while programming in BASIC.

To actually call Execute(), you need to introduce it to your program, so it is not thought of as an undefined array when called, via a DECLARE FUNCTION Execute& LIBRARY statement. While we're at it, let's simplify the finding of a file by using DOS' Lock() and UnLock() functions. Since Lock() returns a value, it must also be declared in a DECLARE FUNCTION statement. The key to remember when using these functions is to ensure that any string variables passed via the SADD function are terminated with a NULL (CHR$(0)).

The third, and biggest problem was time-sharing of the CPU. How could I convince AmigaBASIC to let the program lie dormant (relatively) while it wasn't actually being used? It turns out that TIMER can be trapped like the menu and mouse buttons. That code then transformed into one statement at the start of the program:

```
ON TIMER(60) GOSUB PrintCheck : TIMER ON
```

Then, our main loop looks like this:

```
WHILE -1 SLEEP WEND
```

Now, the program would just sit and wait for 60 seconds to pass and then go out to look for a file with a ".PRT" extension.

The only remaining drawback was that of memory usage. The program ate a lot of memory. With AmigaBASIC loaded, you will use approximately 108K of RAM while the program is installed. This can be reduced, however, by compiling the program with AC/BASIC from AbSoft. I won't apologize for the size of this one, since it's the only spooler that I've seen, PD and commercial included, that works totally unattended once installed. Also, since I am running with 4MB of RAM, I can give up 100K for the use of the program. If you don't have the memory to spare, then this will probably just be a good exercise in BASIC multitasking and BASIC to DOS programming.

Okay, so how do you use it? First, you will need to create a specific directory in which you want the spooler to look for your print files. I created a directory called Spooler and then used the ASSIGN command to assign SPL: to it from within my Startup-Sequence file. Since the directory is on my fixed disk, the command looks like this:

```
ASSIGN SPL: DH0:Spooler
```

The main thing is that the logical device SPL: must be assigned before you run the program, or you will be prompted to "insert volume SPL: into any drive" and the program will hang. Once assigned, the program knows exactly where to look for your files. Next, place your files into the SPL: directory and give them all an extension of ".PRT" (upper or lower case). For example, SpreadSht1.PRT, Addend.prt, etc.

Once you invoke the spooler, it will check the SPL: directory every 60 seconds to see if a ".PRT" file exists. If it finds one (or more), it will use the AmigaDOS command COPY to send it out to the current PRT: device. Once it completes the printing, it will rename the ".PRT" file to ".DONE". This prevents the file from being sent out to the printer twice.

Spooler.BAS is set up for use and has been tested with the AC/BASIC compiler from AbSoft. Also, you must have the file "dos.bmap" in the LIBS: directory of your SYS: disk as we will call routines from that library.

Once again, the program is a memory hog, but it behaves

very well in the realm of multitasking. To see how well try running it, and monitor the system with the program PM in the TOOLS directory of your EXTRAS disk. You will see that it sits rather dormant until its 60 seconds come about, and then it takes what it needs of the system's resources to do its job. Once complete, it goes back to sleep.

```
REM $IGNORE ON
CLEAR ,5000
REM $IGNORE OFF
WINDOW CLOSE 1
LIBRARY "dos.library"
DECLARE FUNCTION Execute& LIBRARY
DECLARE FUNCTION Lock& LIBRARY
ON TIMER(60) GOSUB PrintCheck : TIMER ON
ON MOUSE GOSUB MouseCheck : MOUSE ON

Main:
  WINDOW 1," BASIC Spl ",(400,10)-(543,18),14,-1
  wP& = WINDOW(7)
  COLOR 3 : PRINT "Close Gadget exits";
  fLock& = Lock&(SADD("Spl:FF"+CHR$(0)),-1)
  IF fLock& = 0 THEN
    UnLock& fLock&
    OPEN "Spl:FF" FOR OUTPUT AS 2 LEN = 16
    PRINT #2,CHR$(12)
    CLOSE 2
    KILL "Spl:FF.info"
  END IF
  UnLock& fLock&

Loop:
WHILE -1
  SLEEP
WEND

PrintCheck:
TIMER OFF               ' Turn it off til we're through
x=Execute&(SADD("LIST > RAM:{SPL} Spl:"+CHR$(0)),0,0)
OPEN "RAM:{SPL}" FOR INPUT AS 1 LEN = 1024
WHILE NOT EOF(1)
  LINE INPUT #1, A$
  A$ = UCASE$(A$)
  J=INSTR(A$,".PRT")
  IF J <> 0 THEN
    B$ = "Spl:"+LEFT$(A$,J+4)
    C$ = "COPY "+B$+" PRT:"+CHR$(0) ' AmigaDOS needs the NULL!
    D$ = "RENAME "+B$+" AS SPL:"+LEFT$(A$,J)+"DONE"+CHR$(0)
    x=Execute&(SADD(C$),0,0)
    x=Execute&(SADD("COPY Spl:FF PRT:"+CHR$(0)),0,0)
    x=Execute&(SADD(D$),0,0)
  END IF
WEND
CLOSE 1
x=Execute&(SADD("DELETE > NIL: RAM:{SPL}#?"+CHR$(0)),0,0)
TIMER ON                ' Turn it back on and wait again
RETURN

MouseCheck:
IF WINDOW(7) <> wP& THEN Finished
    ' if we didn't CLOSE the window return and wait
RETURN

Finished:
  REM $IGNORE ON
  WINDOW CLOSE 1 : WINDOW CLOSE 2
  LIBRARY CLOSE : CLOSE : SYSTEM
  REM $IGNORE OFF
```

END

Continued from page 73

```
1295 DE=.37*D:GOSUB 7000'DLFN
1296 RETURN'BAQK
1299 REM OWN EQUAL TEMPERAMENT'BTKT
1300 PRINT"[CLEAR,DOWN,SHFT T]
     HIS FUNCTION LETS YOU DEFINE AN
     EQUAL TEMPERAMENT SCALE."'BAAN
1301 PRINT"[DOWN,SHFT T]
     HE OCTAVE WILL BE DIVIDED INTO
     THE NUMBER OF SEGMENTS YOU ";
     'BBSO
1302 PRINT"SPECIFY. [SHFT I]
     NPUT SEGMENTS FROM 1 TO 1200 (12
     IS A 'NORMAL' ";'BBXN
1303 PRINT"CHROMATIC SCALE,
      1200 IS ATUNER'S 'CENTS'
     SCALE).":PRINT'CBHM
1304 PRINT"[SHFT P]RESS <[SHFT R,
     SHFT E,SHFT T,SHFT U,SHFT R,
     SHFT N]> AFTER ENTERING THE
     DESIRED ";'BBFP
1305 PRINT"NUMBER OF SEGMENTS BELOW."
     :PRINT'CBBJ
1306 INPUT"[SHFT N]UMBER OF SEGMENTS
     ";EI'BDCJ
1307 IF EI<1 OR EI>1200 THEN PRINT"
     [HOME,DOWN13]";:GOTO 1306'HPQL
1309 PRINT"[DOWN2,SHFT P]RESS <
     [SHFT S,SHFT P,SHFT A,SHFT C,
     SHFT E] [SHFT B,SHFT A,SHFT R]
     > TO END THIS SECTION. "
     :PRINT'CBYV
1350 GOSUB 2000'BEDC
1355 PP=261.626:REM ACTUAL HZ
     FREQUENCY VALUE FOR C'CLCR
1360 CR=2^(1/EI):REM MULTIPLYING
     FACTOR FOR SEGMENTS'EMXP
1370 CN=.06097:REM COMMODORE
     FREQUENCY CONVERSION'CMGO
1380 BF=INT(PP/CN)'DIEI
1390 HI%=BF/256:LI%=BF-256*HI%'FUSN
1395 PRINT" 0 ";'BBSL
1400 POKE SI+7,LI%:POKE SI+8,HI%'EPRD
1405 DE=1:GOSUB 7000'CIYE
1410 POKE SI+11,17'CHKA
1430 I=0'BCRB
1440 AF=LOG(PP)+LOG(CR)*(I+1)
     :BF=EXP(AF):CF=INT(BF/CN)'LFGP
1445 IF CF>61176 THEN GOSUB 8000
     :GOTO 80'FOPL
1450 HJ%=CF/256:LJ%=CF-256*HJ%'FUXK
1460 PRINT I+1;" ";'CEHF
1470 POKE SI,LJ%:POKE SI+1,HJ%'DOSJ
1480 POKE SI+4,17'CGOH
1490 DE=1:GOSUB 7000'CIYI
1500 GET K$'BCQY
1510 IF K$=" "THEN GOSUB 8000
     :GOTO 80'FJRD
1530 I=I+1'CDFD
1540 GOTO 1440'BEGD
1999 REM INITIALIZE SID CHIP'BRHA
2000 FOR SI=54272 TO 54296:POKE SI,0
     :NEXT'FSGB
2010 SI=54272:POKE SI+24,15
     :REM LOUDNESS'EYAD
2012 POKE SI+5,0:POKE SI+6,128
     :REM ADSR-1'FUKE
2013 POKE SI+12,0:POKE SI+13,128
     :REM ADSR-2'FWWG
2014 POKE SI+19,0:POKE SI+20,128
     :REM ADSR-3'FWDH
2015 POKE SI+4,17:POKE SI+11,17
     :POKE SI+18,17'GWWI
2016 RETURN'BAQB
3899 REM FLASHING GET ROUTINE'BSYB
3900 POKE 198,0:POKE 204,0:POKE 207,0
     :WAIT 198,1:POKE 204,1
     :GET K$'GHVN
3901 IF K$<>"Y"AND K$<>"N"THEN
     3900'HIBL
3902 RETURN'BAQG
4999 REM SET UP TEMPERAMENT
     ARRAYS'BWBF
5000 SF=2145:REM STARTING COMMODORE
     FREQUENCY FOR C BELOW MIDDLE
     C'CYFM
5050 K=1'BCUD
5060 J=1'BCTE
5070 GOSUB 5599'BEEF
5080 FOR I=1 TO 23'DEGH
5090 READ IC'BCTH
5100 H1%=SF*(1+IC)/256:L1%=(SF*(1+IC))
     -256*H1%'JHFL
5110 ON J GOSUB 5170,5190,5210,
     5230'CUAE
5120 NEXT'BAEA
5130 IF J=4 THEN 5250'DGUE
5140 J=J+1'CDHE
5150 IF K=1 THEN 5080'DGTG
5160 IF K=2 THEN 5280'DGWH
5170 EH(I)=H1%:EL(I)=L1%'CRWK
5180 RETURN'BAQG
5190 PH(I)=H1%:PL(I)=L1%'CRTM
5200 RETURN'BAQY
5210 JH(I)=H1%:JL(I)=L1%'CRHF
5220 RETURN'BAQB
5230 MH(I)=H1%:ML(I)=L1%'CRNH
5240 RETURN'BAQD
5250 IF K=2 THEN 5320'DGRH
5260 GOSUB 5599'BEEG
5270 J=1:K=2'CFYI
5280 FOR I=24 TO 46'DFOJ
5290 READ IC'BCTJ
5300 H1%=SF*2*(1+IC)/256
     :L1%=(SF*2*(1+IC))-256*H1%'LJRO
5310 GOTO 5110'BEEC
5320 RETURN'BAQC
5329 REM SCALE VALUES'BLXO
5330 RL=5340:GOSUB 11000
     :GOTO 5570'DREI
5340 DATA 1,4,7,10,13,16,19,24,27,30,
     33,36,39,42,45'BQNM
5350 RL=5360:GOSUB 11000
     :GOTO 5570'DRGK
5360 DATA 1,4,6,10,13,15,19,24,27,29,
     33,36,38,42,45'BQSO
5370 RL=5380:GOSUB 11000
     :GOTO 5570'DRIM
```

```
5380 DATA 1,4,6,10,13,16,18,24,27,29,
     33,36,39,41,45'BQSQ
5390 RL=5400:GOSUB 11000
     :GOTO 5570'DRBO
5400 DATA 1,3,6,10,13,15,18,24,26,29,
     33,36,38,41,45'BQOJ
5410 RL=5420:GOSUB 11000
     :GOTO 5570'DRDH
5420 DATA 1,4,7,12,13,16,19,24,27,30,
     35,36,39,42,45'BQRL
5430 RL=5440:GOSUB 11000
     :GOTO 5570'DRFJ
5440 DATA 1,4,7,10,13,16,18,24,27,30,
     33,36,39,41,45'BQLN
5450 RL=5460:GOSUB 11000
     :GOTO 5570'DRHL
5460 DATA 1,4,6,10,13,15,18,24,27,29,
     33,36,38,41,45'BQQP
5470 RL=5480:GOSUB 11000
     :GOTO 5570'DRJN
5480 DATA 1,3,6,10,12,15,18,24,26,29,
     33,35,38,41,45'BQMR
5490 RL=5500:GOSUB 11000
     :GOTO 5580'DRDP
5500 DATA 24,26,27,29,30,33,35,36,38,
     39,41,42,45'BNRJ
5510 RL=5520:GOSUB 11000
     :GOTO 5580'DRFI
5520 DATA 24,25,27,28,30,33,34,36,37,
     39,40,42,45'BNML
5529 REM ARRAYS FOR SCALE VALUES'BUCT
5530 HM(I)=EH(MI):LM(I)=EL(MI)
     :RETURN'DYEM
5540 HM(I)=PH(MI):LM(I)=PL(MI)
     :RETURN'DYBN
5550 HM(I)=JH(MI):LM(I)=JL(MI)
     :RETURN'DYOO
5560 HM(I)=MH(MI):LM(I)=ML(MI)
     :RETURN'DYUP
5569 REM READ SCALE VALUES'BPBV
5570 NO=8:FOR I=1 TO 15:READ MI
     :ON TU GOSUB 5530,5540,5550,5560
     :NEXT:RETURN'JKSW
5580 NO=13:FOR I=8 TO 20:READ MI
     :ON TU GOSUB 5530,5540,5550,5560
     :NEXT:RETURN'JLOX
5598 REM TEMPERAMENT RATIOS'BRMY
5599 RL=5600:GOSUB 11000:RETURN'DNFY
5600 DATA 0,.05946,.05946,.12246,
     .1892,.1892,.2599,.3348,.2599,
     .3348,.4142'BOPQ
5610 DATA .4142,.4983,.5874,.5874,
     .6818,.7818,.7818,.8877,1,.8777,
     1,1'BJTQ
5620 DATA 0,.0679,.0535,.125,.2014,
     .1851,.2656,.3515,.2485,.3333,
     .4238'BKZR
5630 DATA .4046,.5,.6017,.5802,.6875,
     .8021,.7777,.8984,1.0136,.8728,1,
     1'BLCS
5640 DATA 0,.0417,.0667,.125,.1718,.2,
     .25,.3020,.28,.3333,.4062'BDIR
5650 DATA .4400,.5,.5625,.6,.6667,
     .7578,.8,.875,.9531,.92,1,1'BBCS
5660 DATA 0,.0449,.07,.118,.1682,
     .1963,.25,.3062,.28,.3375,
     .3975'BERT
5670 DATA .4311,.49535,.5625,.6,.6718,
     .747,.7889,.8691,.9531,.914,1,
     1'BJQW
5999 REM READ ASCII FOR REAL TIME'BUCF
6000 RL=6020:GOSUB 11000'CMIB
6010 FOR I=0 TO 7:READ AS:AS(I)=AS
     :NEXT:RETURN'HQOH
6020 DATA 49,50,51,52,53,54,55,56'BXBE
6999 REM TIMING LOOP'BKTD
7000 TI$="000000"'BDCB
7010 IF TI/60<DE THEN 7010'EKEE
7020 RETURN'BAQB
7999 REM CLEAR SID CHIP'BMYE
8000 FOR SI=54272 TO 54296:POKE SI,0
     :NEXT'FSGH
8010 RETURN'BAQB
10999 REM RESTORE TO SPECIFIC LINE
      ROUTINE'BDIU
11000 POKE 785,232:POKE 786,7
      :POKE 209,232:POKE 210,7
      :POKE 211,0:POKE 213,39'GPPD
11010 PRINT" S[RVS]&$[RVOFF,CMDR *,
      RVS]HD[RVOFF,SHFT A,RVS]$[RVOFF,
      SHFT SPACE,RVS]D[RVOFF,SHFT B,
      SHFT SPACE]"'BAOB
11011 POKE RL,PEEK(RL):RL=USR(RL)
      :RETURN'FPKB
```

END

Programming/Stratahex

Continued from page 69

```
2676 IF PC>1 THEN NEXT LO'EFUQ
2680 IF PC=0 OR PC=1 THEN 2652'FKFN
2685 GOTO 2900'BEIO
2700 X=X(PT):Y=Y(PT)'CNIF
2702 IF X>38 OR Y=0 THEN 2900'FJQI
2705 X=X+1:Y=Y-1'EHHK
2710 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLQ
2715 X=X+1'CDKJ
2720 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYQ
2725 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXT
2726 IF PC>1 THEN NEXT LO'EFUM
2730 IF PC=0 OR PC=1 THEN 2702'FKBJ
2735 GOTO 2900'BEIK
2750 X=X(PT):Y=Y(PT)'CNIK
2752 IF X<2 OR Y=20 THEN 2900'FJLN
2755 X=X-1'CDLN
2760 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLV
2765 X=X-1:Y=Y+1'EHHQ
2770 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYV
2772 IF PC=0 THEN 2752'DHSN
2775 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXY
2776 IF PC>1 THEN NEXT LO'EFUR
```

```
2780 IF PC=0 OR PC=1 THEN 2752'FKGO
2785 GOTO 2900'BEIP
2800 X=X(PT):Y=Y(PT)'CNIG
2802 IF Y>19 THEN 2900'DHMH
2805 Y=Y+1'CDMJ
2810 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLR
2815 Y=Y+1'CDMK
2820 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYR
2825 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXU
2826 IF PC>1 THEN NEXT LO'EFUN
2830 IF PC=0 OR PC=1 THEN 2802'FKCK
2835 GOTO 2900'BEIL
2850 X=X(PT):Y=Y(PT)'CNIL
2852 IF Y>19 OR X=39 THEN 2900'FKAO
2855 X=X+1'CDKO
2860 IF (PEEK(C+X+Y*40)AND 15)=7 THEN
     PRINT "[UP,RVS]<<<<BLOCKED>>>>"
     :GOTO 2900'KRLW
2865 X=X+1:Y=Y+1'EHGR
2870 IF PEEK(V+X+Y*40)=81 THEN
     PC=(PEEK(C+X+Y*40) AND 15)'NWYW
2875 IF PC>1 THEN FOR LO=1 TO PL
     :IF PC=C(LO) THEN P=LO'KTXA
2876 IF PC>1 THEN NEXT LO'EFUS
2880 IF PC=0 OR PC=1 THEN 2852'FKHP
2885 GOTO 2900'BEIQ
2900 IF P=0 THEN 2960'DGCG
2902 POKE C+X(P)+Y(P)*40,4'ENTK
2905 ON P GOTO 2920,2930,2940,
     2950'CUON
2920 X(P)=19:Y(P)=0:POKE
     V+X(P)+Y(P)*40,81:POKE
     C+X(P)+Y(P)*40,C(P)'KTJV
2925 GOTO 2960'BEOL
2930 X(P)=19:Y(P)=20:POKE
     V+X(P)+Y(P)*40,81:POKE
     C+X(P)+Y(P)*40,C(P)'KUJW
2935 GOTO 2960'BEOM
2940 X(P)=1:Y(P)=11:POKE
     V+X(P)+Y(P)*40,81:POKE
     C+X(P)+Y(P)*40,C(P)'KTCX
2945 GOTO 2960'BEON
2950 X(P)=39:Y(P)=10:POKE
     V+X(P)+Y(P)*40,81:POKE
     C+X(P)+Y(P)*40,C(P)'KUKY
2960 IF PT=PL THEN 2000'DIEM
2970 NEXT PT'BCML
4000 PRINT "[CLEAR,CYAN]
     CONGRATULATIONS, PLAYER";W'BCLF
4010 PRINT "[YELLOW]YOU ARE THE
     WINNER"'BAWD
4020 PRINT"[DOWN2,L. GREEN]
     PLAY ANOTHER GAME (Y/N)"'BAFF
4030 GET A$:IF A$="" THEN 4030'EJED
4040 IF A$="N" THEN PRINT "[CLEAR]"
     :END'FDBE
4050 IF A$="Y" THEN RUN'ECTE
4060 GOTO 4030'BEED
```

END

Best of Amiga Public Domain

Continued from page 57

Communicator version 1.34 was the general-purpose PD terminal program of choice for virtually all Amiga users. It didn't have a ton of features (at least compared to the terminal programs today, although when it first appeared in mid 1986 it blew away the crop of PD general-purpose terminal program available), but those it had worked and it was a rock-steady program.

The other reason why Communicator is awarded a medal is that it is the father of both AMIC PD TERM, and Access! (which is poised to knock AMIC PD TERM off as the best general-purpose terminal in 1988). Dan James performed a great service to telecommunicating Amiga users by unselfishly releasing his source code for Communicator 1.34 in order to help other programmers create even better Amiga PD terminal programs. Although I now personally only recommend Communicator to beginning Amiga users who want to start using their modem quickly without having to become familiar with a more powerful but complicated terminal program, Communicator and its author Dan James have easily earned this award.

In early 1987, Communicator version 1.34 was the general-purpose PD terminal program of choice for virtually all Amiga users.

Bronze Medal: **Handshake** by Eric Haberfellner (AmigaZone file #10236; Shareware: $25)

Handshake replaced Dave Wecker's venerable terminal program (named appropriately VT100) as the top VT-100 oriented terminal program in 1987. Handshake not only blew away VT100 in terms of emulating a VT100 terminal, but Eric was loudly claiming that Handshake even surpassed *all* commercial terminal programs in terms of VT-100 emulation.

Eric backs up this claim with a message posted on Usenet where Marco Papa's VTTest program was used to test five terminal programs for VT100 compatibility. In the test Handshake blew VT100 away and also proved superior to the commercial programs *Diga!* and *A-Talk*. (In all fairness this test was conducted back in July of 1987. How about doing a new comparison, Eric?)

Handshake also has such features as autodialing, a phone directory and Xmodem-CRC plus Ymodem/Ymodem-batch protocol support that make it quite usable for general-purpose telecommunicating also. Although it is designed for a different type of user, Handshake is still the only PD telecomm program that even comes close to giving AMIC PD TERM a run for its money in terms of features.

Honorable Mention: **ACO** by Steve Pietrowicz (AmigaZone file #10883)

ACO has brought Amiga-quality graphics to teleconferencing, and it also allows people to better express themselves online by designing their own custom faces for use in ACO on PeopleLink.

System Utilities

Gold Medal: **VirusCheck** by Bill Koester (AmigaZone file #9974)

I have little doubt in my mind that one of the major stories in the Amiga community in late 1987 was the first appearance of viruses on the Amiga. Most Amiga users were at least worried, and since most had never used a disk editor before, a pro-

gram was sorely needed that was expressly designed for checking a floppy disk for the presence of a virus. It isn't the best such program today, but it was the first, and that is what counted back then.

Silver Medal: **GOMF** by Christian Johnsen (Fish 95; Shareware: $5)

What ideas do you associate with the Amiga? Great graphics? Stereo sound? Well, how about the dreaded Guru? Although it wasn't as bad this past year as during the early days, Gurus were still a common sight. GOMF (Get Outta My Face) was the first serious attempt to eliminate the destructive nature of Gurus in terms of bringing down the entire system with one faulty program. GOMF only stopped some crashes, but it did work. GOMF didn't totally cure the Guru blues of Amiga users, but at least GOMF showed convincingly that the Guru is not invincible.

Bronze Medal: **Journal** by Davide Cervone (Fish 95)

What do you do to show off your Amiga to your friends? Don't you wish your Amiga could show itself off? Well don't laugh, because that is indeed possible. Journal allows you to essentially simulate hooking up a VCR to your Amiga and recording an Amiga session. By capturing the input stream and recording it for later playback, Journal will save each and every action you performed, whether it be a key press, a mouse pointer movement or a mouse button click. Many companies are starting to use this technique to create demos that actually simulate the program being used.

Although other PD programs, and now at least one commercial program, have been introduced that perform the same basic function, Journal is the program that first brought this concept to Amiga users. One other nice aspect about Journal is it shows another software concept that can only be realized on a true multitasking system.

Honorable Mention: **MoreRows** by Neil Katin and Jim Mackraz (Fish 54)

MoreRows gave a simple and very useful example of how the average user could utilize the overscan area for normal use, including CLI and Workbench. A side effect of Commodore introducing the A1084 monitor is that now even more people can easily take advantage of the entire overscan display area since unlike the A1080, the A1084 allows the user to shrink the video display in both the horizontal and vertical directions (the A1080 allowed control only in the vertical direction). This means that you can now easily use MoreRows to view up to around 85 characters horizontally in the average word processor instead of the normal limit of 76 or 77 (taking into account the area taken up by bar/border gadgets on each side). Combine that with the four or five extra rows of text that can fit in a MoreRows display, and I think you can start to see how useful MoreRows can become.

> With PKAX Amiga users can download archived MS-DOS text files and be completely confident that they will be able to unravel the archive.

Honorable Mention: **Mach** by Brian Moats (Fish 130)

What makes Mach special is that it essentially combines several popular utility programs (screen-blanker, title-bar clock and New CLI hotkey) into one tiny package. Among other things Mach can help eliminate the clutter of small window and bar displays that can occur when you are running several utility programs at one time.

File Utilities

Gold Medal: **PKAX** by PKWARE Inc. (AmigaZone file #9641; Shareware: $25)

Telecommunicating Amiga users know that ARC is still the predominant standard for compressing files for modem transfer. Although others have tried to replace ARC with another standard (in this case most notably ZOO), like a tired elephant, the entrenched ARC is here to stay. For those who aren't happy with ARC, it would make sense to adopt something that is superior to ARC, yet downward compatible with ARC.

PKAX is the answer. PKAX is a program that will only unravel files, it will not create archives. However, PKAX will unravel ARC archives in half the time that ARC can. Just as important is the fact that in addition to the standard compression modes the Amiga version of ARC supports (crunching, squeezing, packing and storing), PKAX also can handle files compressed with the squashing compression mode. Why would Amiga users care about a compression mode that isn't even used by their own ARC program? Amiga users should care since in the MS-DOS telecommunications service world, the standard is not ARC, but PKARC. PKARC is faster, more powerful and more efficient than ARC.

What makes PKARC incompatible with ARC (from a de-arcing point of view) is PKARC's squashing compression mode. Therefore, Amiga users are not able to unravel most archives downloaded off an MS-DOS-oriented BBS or online service using ARC. But if PKAX is used, there is no problem. So with PKAX Amiga users can download archived MS-DOS text files or other files useful to an Amiga user and be completely confident that they will be able to unravel the archive.

There are two other reasons why PKAX is very important to the Amiga community. First, the introduction of PKAX to the Amiga means that eventually something even better will hit the Amiga PD software scene: PKARC. Both PKAX and PKARC are written by the same company, PKWARE Inc., so it is only natural to assume that PKARC can't be too far away from entering the Amiga world. PKARC will not only allow Amiga users to create archives substantially faster that ARC can, it will also create much smaller archives (thanks to the squashing compression mode, which is much more advanced than the other modes). I'm sure BBS sysops and BBS users will love to see smaller arc files!

Second, on some MS-DOS BBSs that also support an Amiga section (and there are many of these), some sysops have decided to adhere to only one archiving standard for the entire BBS, PKARC. This means that all the Amiga files, in addition to all the MS-DOS files will be compressed with PKARC (this is possible since MS-DOS sysops have access to a special program called LARC which will easily convert ARC archives to PKARC archives). Therefore on these BBSs, an Amiga user who wants to download an Amiga file will have to use PKAX to assure that he will be able to unravel the PKARC archive successfully.

Silver Medal: **FileInjector** by Justin McCormick (AmigaZone file #9973)

With computer systems if you don't like a certain peripheral supplied by the computer manufacturer, you can usually replace it with a compatible piece of hardware from a third party manufacturer. Unfortunately the same usually doesn't hold true if don't you like a certain part of a software program. Or does it?

FileInjector allows you to junk the file requestor in any program and use a separate one instead. While renowned Amiga programmers like Charlie Heath and R.J. Mical try to help programmers by providing nice file requesters to add to their own programs, Justin McCormick has provided help for Amiga users who use programs written by programmers who just don't take advantage of such help.

Conman is like a cup of coffee in the morning. When you use it, you don't think that much about it. But when you don't have it, you just can't function as well.

Bronze Medal: **Pak** by Mark Riley (AmigaZone file #8896)

Pak has brought something to the Amiga telecommunicating community which unlike the 64/128 community, we have lacked until now. That is archives that are "self-dissolving." Self-dissolving archives (known simply as SDAs to you 64/128 users) are compressed archives where the user doesn't need a separate program to unravel the archive. All the user has to do is type the name of the archive.

Pak in a sense is the archive to use on those special few files that a totally new Amiga user *must* have in order to get started in the BBS/online service world. (For example, on my own IDCMP BBS, I have used Pak to compress PKAX, so that new Amiga users can easily get PKAX in order to start downloading and unraveling archives created with ARC.) Pak also allows filenames to be longer than 12 characters, which is convenient since unlike MS-DOS, AmigaDOS allows for long filenames. (This is a point which fans of the archiver ZOO have eagerly used to try to convince everyone else that ZOO is better than ARC, although there are many programs that allow ARC users to archive files with long names without too much trouble.)

CLI Improvements/Replacements

Gold Medal: **Conman** by Bill Hawes (Fish 133; Shareware: $10)

Conman is like a cup of coffee in the morning. When you use it, you don't think that much about it. But when you don't have it, you just can't function as well. That's just how indispensable it has become to me as well as to other Amiga users who are just as addicted.

How many times have you misspelled a CLI command? How many times do you have to type something from CLI that you just typed in a few minutes ago? Besides the obvious parts of Conman (the line-editing and command histories portion of the program), another feature that I couldn't live without is the shrink/expand CLI window functions residing on the F1/F2 keys. It is convenient to be able to get the CLI window out of the way and bring it back again with one key press.

I shouldn't forget the fact that Conman is totally transparent to the average Amiga user. It does not replace your CLI with something else (like a shell does), it enhances what you already have.

Reviewing Uedit is like an art critic reviewing a lump of clay. You can mold it to suit your needs, not those of the author of the program.

Silver Medal: **LS** by Justin McCormick (AmigaZone file #9902)

Without a doubt, the most-used CLI command is the DIR command. LS is what the DIR command should have been. It will use up to five columns to display files, compared to DIR's two columns. LS displays directories in red text for emphasis. LS can sort files by date or by size. It can also do what the AmigaDOS LIST command can do. And, of course, LS supports Unix-style wildcarding in addition to AmigaDOS pattern matching. If you only replace one AmigaDOS command with an improved version, replace DIR with LS.

Text Utilities

Gold Medal: **Uedit** by Rick Stiles (Fish 121; Shareware: $25)

Uedit was definitely the most sophisticated text editor to come along last year. Its Learn mode makes it easy for beginners, and total programmability allows advanced users to shape Uedit into virtually anything they want. There are already application programs out in the public domain that turn Uedit into a front end for either Aztec C or for a Modula-2 compiler, and there are other such application programs for Uedit.

Reviewing Uedit is like an art critic reviewing a lump of clay. You can mold it to suit your needs, not those of the author of the program. How many programs do you know of that allow you to totally reshape the program yourself without writing a single line of code?

Silver Medal: **Blitz** by Hayes Haugen (Fish 60; Shareware: $10)

For those who don't have a fortune to waste on printer paper (or the time to wait for the file to be printed), reading text files on the Amiga monitor is a fact of life. But this fact doesn't have to be a painful one. Using Blitz is much more convenient than using the Type command or even tiny reader programs like More and Less. First of all, Blitz looks like a real program with a real user interface. More and Less reminds me of a program whose growth was purposely stunted so as not to take up too much disk space on a PD disk (and that is understandable).

Blitz scrolls text at a speed like a program running on an Amiga should. Blitz also has a couple of nice stripping commands that help to convert text files that didn't make a modem transmission in the same form that they were created in. Perhaps what's most convenient about Blitz is that it can be told to go into the background and go to sleep (with or without the text file currently being displayed) until called for.

Bronze Medal: **SnipIt** by Scott Evernden (AmigaZone file #8377)

It's too bad that most text-oriented Amiga programs don't make full use of the clipboard. The clipboard can be used to perform cut and paste procedures not only within or between documents, but also between totally separate programs. SnipIt tries to make up for this, by allowing you to move text from one program to another. Unfortunately SnipIt can only help if the two programs you want to import text to/from use console windows and not fancy Intuition windows. Nevertheless SnipIt can still be useful in many situations.

Honorable Mention: **Keep** by Tim Grantham (AmigaZone file #8936)

For BBS/online service users who capture hundreds of messages at a time, Keep can help to sort out the important messages from the rest of the clutter. Keep requires only that there be a header to each message that doesn't change. For each separate message you can tell Keep whether you want it stored and saved as

part of a special group of messages that have special meaning to you.

This program is currently used by the Conference Chairman of PeopleLink's AmigaZone, Harv Laser, to post Usenet captures that contain only messages of interest to the AmigaZone members. Keep already has built-in support for PeopleLink, GEnie, Usenet, CompuServe and bulletin boards running BBS-PC software among others, plus you can input a custom message header.

Normal Demos

Gold Medal: **Khanankas** by Ken Offer (Fish 116)

Khanankas has become the standard example of how good ray-tracing graphics can get on the Amiga. Using what is widely regarded as the Amiga's best graphics mode, interlaced HAM, Khanankas is very good at mesmerizing Amiga users just like Juggler was. Although the animation part of Khanankas is a yawner, the graphics still knock you dead. The fact that Khanankas will run with only 512K made it accessible to all users at the time, and back in 1987 most people still had only 512K.

Silver Medal: **RGB** by Joel Hagen (Fish 112)

RGB not only won the BADGE Killer Demo Contest, but it was also the first demo that showed how *The Director* could be used as an animation creator in addition to just a fancy slide show creator. It also helps if a demo has a decent humor content, and RGB was amply supplied in that department. Though I think that the judges at BADGE gave its humorous content a bit too much emphasis in their judging, RGB is a very fine demo.

Khanankas has become the standard example of how good ray-tracing graphics can get on the Amiga.

Bronze Medal: **Probe** by Joel Hagen (AmigaZone files: 7291, 7294 and 7295)

Most demos last 30 seconds or less before repeating. When I first got this demo that ran for over six minutes, I was quite intrigued. Probe may not be as flashy as most demos, but unlike most demos, Probe has a real story inside it. You weren't dazzled by Probe after watching it, but you still wanted to have a copy anyway. Of course being shown on TV as well as being featured in *AmigaWorld* counts for something too.

Honorable Mention: **Berserk** by Leo Schwab (Fish 132)

Besides the now-famous story behind Berserk and its famous predecessor, Berserk is one of the best *VideoScape 3-D* demos I have ever seen, if not the best ever. I wonder what wonderful creations Leo can pull out of his cape if he suddenly acquires an interest in ray tracing.

Not only did DemoReel1 receive a gold medal this year, it shouldn't have too tough a time gaining entry into the Amiga PD Hall of Fame next year.

Custom Demos

Gold Medal: **DemoReel1** by NewTek, Inc.

There is no question this was the top Amiga demo of 1987. It was both dazzling and long-lasting. Not only did it have killer graphics and nice animation, it also contained something that most graphics demos sorely lack—sound. DemoReel1 had fantastic digitized music and sound effects to complement the visual part of the demo.

As far as demonstrating things that weren't old hat to the Amiga community, DemoReel1 featured the 640 × 400 color digitizing mode (with such stunning pictures as the "Prego" and "Sanka" ads) that had been added to their digitizer DigiView.

DemoReel1 also premiered some of the possibilities of NewTek's yet-to-be-released special effects package *Digi-F/X*. Plus it obviously impressed quite a few non-Amiga owners with the HAM graphics that most of us have become pleasantly accustomed to by now. Not only did DemoReel1 receive a gold medal award this year, it shouldn't have too tough a time gaining entry into the Amiga PD Hall of Fame next year.

Silver Medal: **El Gato** by Kevin Sullivan (Fish 125)

Color graphics in a demo usually take precedence over the animation portions. However, El Gato is a major exception to the rule. El Gato's animation of a digitized cat walking inside a window rotating in 3D was one of the most stunning things I saw on my Amiga all year. It didn't seem to matter that the only colors used in El Gato were muted shades of brown and gray. El Gato was unique in that it was the first demo I can remember that actually required more than 512K in order to run fully.

Bronze Medal: **Zeus** by Greg Tsadilas and Jay Dawes

This demo would have received much more praise if El Gato hadn't preceded it by five months. Still this demo was only one of three demos that was forever immortalized in Commodore's Amiga 500 TV commercial (the other two were Juggler and Allen Hastings' *VideoScape* demo). It is certainly more colorful than El Gato. The golden reflections off the spinning sculpture were a pleasant sight indeed. However, it came out after RGB, HalfBrite Hill and other great demos, and it just didn't stand out as much in November of 1987 as it would have back in April. But it's still much better than anything any other micro under $5000 could hope to show.

Honorable Mention: **Killer** by Robert Wilt (Fish 115)

This demo gets recognized mainly since many computer users, (especially Amiga users) like to show that their computer is superior to others. It really is childish, but you still can't help feeling smug after seeing Killer. Others just liked it since it featured Beatles tunes. Take your pick.

Honorable Mention: **HalfBrite Hill** by Kevin Sullivan (Fish 126)

How many of you had ever seen anything in HalfBrite mode before this demo appeared? On top of being a colorful demo, hats off to Blair-Sullivan for bringing this neglected mode out of the dark. I know Leo Schwab's HalfBrite demo EHB (reviewed in March 1988 column) came before this one, but HalfBrite Hill is much nicer.

Honorable Mention: **Marketroids** by Leo Schwab (Fish 115)

Being the Amiga addict that I am, I couldn't possibly refrain from giving some kind of award to Leo for Marketroids. If for nothing else, Marketroids wins on humor and steadfast loyalty to the true spirit of the Amiga. Sure, the graphics are such that Atari ST fans could port this to their machine easily, but doing that would be

like McDonald's selling flame-broiled burgers, it's self-defeating and probably quite embarrassing.

Graphic Display Hacks (GDH)

Gold Medal: **Robotroff** by Leo Schwab (Fish 59)

For several reasons this was the king of GDHs in 1987. First of all, unlike most GDHs, Robotroff didn't take control of the machine in order to perform its silliness (small Robortron characters march onto screen and try to take your pointer), it largely left the system alone. The user could continue with whatever he was doing before Robotroff was run. Robotroff also is a harmless GDH in that it does not harm the current display in any way. And Robotroff has a time delay feature that can be used to surprise an unsuspecting friend. It also adds a small element of chance, since you never know which Robotron character will appear to attack your pointer.

Silver Medal: **Scat** by Steve Pietrowicz (AmigaZone file #6156)

While Ing! was based on the same concept, Scat was much more fun to play with. Imagine mutiny by the windows on your screen against your pointer—that's this program.

Bronze Medal: **Vacbench** by Randy Jouett (AmigaZone file #9017)

Besides the obvious amusement this GDH provides, Vacbench could actually be put to use if, for example, you have a stray graphic element on your Workbench screen that you wanted to get rid of.

Honorable Mention: **Viacom** by Leo Schwab (Fish 112)

Leo created this to make a political statement against a cable company whose service he felt wasn't up to par. The next time someone adjusts the antenna or moves a piece of equipment near your Amiga, give 'em a little grief by running this and complaining that it is giving you interference.

Sound

Gold Medal: **Play** by Mark Riley (AmigaZone file #9421; Shareware: $10)

Although a couple of SMUS players (which many people had trouble with) did appear before it, Play is generally recognized as the first PD music player for the Amiga. All Amiga users could easily display pictures and animations, but until Play came along it wasn't easy to show off the Amiga's musical talent to others without actually buying a commercial music package. Mark Riley performed a great service to the Amiga community by making music accessible to all Amiga users.

Silver Medal: **LED** by Mark Riley (AmigaZone file #7654)

Commodore helped the music scene when they added a software switch in the Amiga 500 and 2000 that turns the low pass audio filter off. The only thing that Commodore didn't do was to actually provide a program on the Workbench disk that allowed you to take advantage of this new feature. Mark has provided the program to allow Amiga 500/2000 owners to take advantage of this improvement to their machines.

Other

Gold Medal: **Wordwright** by RTL Programming Aids (AmigaZone file #8400)

It is certainly nice to have many PD text editors available for the Amiga, but there are times when you long for a word processor after trying to force your favorite PD text editor to do things that it simply wasn't created to accomplish. Wordwright is the only PD word processor available, not only back in 1987 but even in early 1988.

Wordwright isn't a bare bones program either. Features like mail merge, an outliner, a general set of utilities, formula support and macros beef up Wordwright. Many users complain about Wordwright once they start to get serious with using it, and is true that Wordwright's user interface isn't designed for beginning users. Nevertheless, Wordwright is the only one available, and I applaud the author for releasing it (even if he only did it after unsuccessfully trying to release it as a commercial product).

Silver Medal: **Programmer's Suite** by R.J. Mical (Fish 107)

There are tons of programming examples for the Amiga. Most of these are simply the source code listing of various PD programs that have been attached to the archives of the main programs themselves.

If you are looking for more than just another piece of source code, R.J. Mical's Programmer's Suite Book One is a very helpful set of tools and examples. Book One of Programmer's Suite includes several different routines with the accompanying source code, including a color file requester, a fast text routine plus a way to use custom wait pointers. Just as important as the source code itself were make files for both Aztec and Lattice C compilers present with every routine. R.J. didn't have to release Book One as PD, he could have kept his original plans to release it as a commercial product. Instead Amiga users have another reason to thank him.

Bronze Medal: **The Final List** by Chet Solace

Compared to all the PD products that I have seen in 1987, this one has to be a horrible nightmare to maintain. How would you like to call over 700 BBSs in North America (not including a few dozen in Australia and Europe) each month in order to maintain the largest Amiga BBS listing in the world (and probably more extensive than any other listing for *any* other computer)? For this alone Chet Solace deserves a salute, but it doesn't stop there.

The Final List is by default a phone directory that is compatible with almost every Amiga PD terminal program (namely Communicator and all of its children, including AMIC PD TERM). And Chet tries his best to provide supporting information about each bulletin board listed in The Final List (even if the information regarding accessibility via PC-Pursuit for each bulletin board isn't always correct).

I hope that those of you who are using The Final List will consider helping Chet to keep this friendly giant alive and up-to-date via either a monetary or informational contribution, since it would be a shame if The Final List has to be taken down due to lack of user support.

There you have it—my awards for the best Amiga PD programs of 1987. Assuming that I'll be around for another year, I will be picking from among newly-released programs for possible entries into the Amiga PD Hall of Fame for next year.

In the mean time, if you would like to recommend a program to be inducted into the Amiga PD Hall of Fame from this group (or possibly another program, although don't consider such a selection to be very likely), please attempt to contact me either via PeopleLink (ID: G KINSEY), or on the IDCMP BBS (617)769-3172, 24 hours a day, or via *Commodore Magazine.* And, of course, if you would also like to nominate a PD program written in 1988 for an award when I select the Best of 1988 Amiga PD programs next year, please do so. Until then, I'll hope you'll be keeping up with the newest in Amiga PD programs every month in my regular column right here in *Commodore Magazine.*

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Word processing placeholder: If you're working on a long document and need to quit for the moment, it's sometimes hard to remember where you were working when you quit. The same trouble arises when you need to move temporarily to the top or bottom of the document.

You can make it easy to find your place by typing one or more special characters before you move away. Then just use your software's Find function to search for the special characters.

I often use two asterisks, dollar signs or other keyboard characters as my placeholder. Anything at all will work, provided it isn't repeated elsewhere in your document.

Arleigh
Q-Link

Organizing word processor files: If you do much writing with your word processor, it's easy to accumulate a long list of files stored on your disk. Pretty soon it gets hard to remember which file is which, and it gets *very* hard to retrieve what you want from the disk.

The 1581 drive happily increases disk storage space, but it makes this problem even worse. Here's my solution:

1. Format a blank disk.
2. Create a blank document and save it with the name DIRECTORY.
3. When saving a letter or other document, name it with the date and a short identifying name. For example, 070488JSMITH might be a letter written to John Smith on July 4, 1988.
4. As soon as you have saved such a document, load DIRECTORY.
5. Add the new letter's name to DIRECTORY, adding a few keywords. In our example, you might add "070488JSMITH-Amiga-Software".
6. Resave DIRECTORY. When it's time to retrieve your letter, load DIRECTORY into your word processor and use the Search or Find feature to look for the keywords you remember.

QTUTOR bar
Q-Link

GEOS and the Apple LaserWriter: If you use an 80 dpi dot matrix printer to print out *geoWrite* files, you know that what you see on the screen is exactly what you get on the paper. But if you use an Apple LaserWriter or use the services of the GEOS Laser Printing Center, your printed output does not always look as you expect it to.

This is because even the GEOS laser fonts cannot perfectly duplicate on the screen the LaserWriter's letter proportions and spacing. The differences are most pronounced when centering long lines of outline text—the LaserWriter lines will be printed too close to the left margin and definitely *not* centered.

To center outline text for printing on the LaserWriter, first center the text and change to normal style (bold for bold-outline). Then place a tab above the beginning of the line of text. Next, left justify the text and change to outline (or bold-outline) style. Finally, move the text over to the tab with CTRL/I. If the text wraps around to the next line, you'll either have to move the right margin to the right or shorten the line of text.

I've found this information useful when using *geoPublish* to edit our local Commodore users group newsletter.

Dave Peterson
Ames, IA

GEOS and the Panasonic KX-P1080i: To make this printer work with GEOS, go to printer setup and change the printer driver to MPS-1000.

Saeed Sadeghi
Granada Hills, CA

***geoPublish* warning:** It appears that *geoPublish* addresses files not only by name, but also by position. Make sure that all the text, photo scrap and font files you plan to use are on the disk that you're using.

I deleted a file because I was running out of disk space, and all of a sudden I got errors all over the place whenever I tried to ripple or edit any text.

Fortytude
Q-Link

Learning BASIC: Remember last month, when we suggested downloading the Q-Link program BASIC BASIC.SDA, uploaded by LOU SANDER1? Here's an E-Mail message I got from a Q-Linker named ENT:

"Thank you for uploading BASIC BASIC. I have had my computer for over a year, and after doing the first section of BASIC BASIC I wrote my own first program! Thank you again."

Q-Linker OMD1 says "BASIC BASIC fills half a disk side, and it's explaining BASIC *much* more intelligibly then the *64C System Guide* or the *Programmer's Reference Guide*."

Louis F. Sander
Pittsburgh, PA

Q-Link repeating keys: If you want your keys to repeat on Q-Link, just enter POKE 650,128 before you sign on. This makes it much easier to draw Q-graphics.

IMD Walrus
Q-Link

Q-Link screen names: In case you're wondering about those funny Q-Link names, each Q-Link subscriber picks his own "screen name" or "handle," by which he becomes known to all other Q-Linkers. Screen names can be up to ten characters long, and the Q-Link computers ensure against duplication. Each subscriber account can have up to five different screen names, to allow for several family members using the same disk.

Some of the names are quite interesting, as are most of the people. A few of my favorites are TBEAR, DOG BRAIN, SHE ELF and QUASIMODEM. One "person," MELIFUR, is actually a furry bunny rabbit (or so she claims).

Louis F. Sander
Pittsburgh, PA

Disk IDs: If you're a casual computerist, you probably don't worry about assigning a different ID to each of your disks. Under most circumstances, that's fine, since the ID makes no difference whatsoever.

But it's still a good idea to implement a consistent naming policy that avoids duplication of disk IDs, because there are two circumstances where duplicate IDs can cause trouble:

1. Some software that uses multiple disks does not run properly if those disks have identical IDs.
2. Many disk library organizing programs are keyed to the disk ID and thus cannot catalog more than one disk with the same ID.

A good way to avoid duplicate IDs is to make up a card the size of a diskette and store it in the back of your disk file. Each time you format a disk, write the ID on this card in its proper alphabetical place. If you follow some pattern like AA, AB, AC, AD and so forth, you'll never duplicate an ID again.
Arleigh
Q-Link

Thick diskettes: Is it hard for you to get 50 diskettes into a disk holder that claims to be able to store that number? The problem is most likely with the disk envelopes, rather than with the disks themselves.

If your disk envelopes are made of thin cardboard, rather than of paper or indestructible Tyvek®, the disk and its envelope will be as much as half again as thick as a disk in a thinner envelope. *(My Verbatim Datalifes used to come in Tyvek, but the newest box came in cardboard. The new ones don't fit well in my storage boxes. LFS)*

If your storage problem is extreme, you can buy Tyvek envelopes and throw the cardboard ones away.
John Kuhne
Newmarket, Ontario
Canada

Colorful disk jackets: If you ever use one of the "disk jacket printer" programs, try this little trick the next time.

Load and run your favorite graphics utility such as *Print Shop* or *Print Master*. Create a design with nothing but a graphic. Then re-insert the paper back into the printer, with the graphic facing the printhead. Load your favorite disk jacket printer, and print the jacket over the graphic.

Cut out your new stylish disk jacket, and see the look of envy on everybody's face.
Earl Harrison
Address Unknown

1571 storage limitation: The 1571 drive can store twice as much data on its double-sided disks as the 1541. All is not perfect, though. The 1571's directory is the same size as the 1541's—144 files maximum.

Granted, this is a somewhat trivial limitation, unless you're storing many small files (like configuration files) on the disk. On the 1541, you could store 144 four-block files and end up wasting 88 blocks because the directory is full. On a 1571, you could still store only 144 four-block files, but you'd be wasting 752 blocks of the disk—the original 88 blocks plus the entire second side!
Charles Lavin
Coral Gables, FL

128 DRAW statement: This statement is more versatile than you might think. The single statement

DRAW 160,100,50,50,35,35,190,190

will draw four different points on the screen. Also,

DRAW 160,100 TO 300,100,50,50 TO 50,100

will draw two separate lines, without having to execute a separate DRAW statement for each one.
IMD Walrus
Q-Link

128 line counter: Have you ever wondered how many lines it took to make that program? If you own a 128, all you have to do is enter RENUMBER 1,1 and list the program. The last line number is your answer.
VictorP6
Q-Link

128 error messages: Enter the words QUIT or OFF in direct mode, and your 128 will surprise you with an ?UNIMPLEMENTED COMMAND ERROR. You won't find *that* in the manual!
John Kuhne
Newmarket, Ontario
Canada

Mark your fanfold paper: When using fanfold paper, it's very desirable to know where the pages end so the paper can be properly lined up in the printer. As soon as I open a new box of paper, I take a bright red or orange broad tip permanent marker and mark a stripe down all four corners of the paper.

I make the mark on the folded edge of the strip of sprocket holes *outside* the perforations. The alcohol base of the marker allows the ink to soak through the paper, so at the end of each page a little red line can be seen at all the corners. This red line is the end of the page and can easily be used to align the paper in the printer.

When the printing is done and the sprocket strip is torn off at the perforations, the red lines go with the sprocket strip, leaving the pages themselves unmarked.

This simple procedure takes about two minutes with each box of paper, and has been a great convenience to me for years.
Bernard J. Sussman
Washington, D.C.

Printouts from the machine language monitor: The 128's built-in machine language monitor is a wonderful tool for exploring the computer's memory, as are the many monitors available for the 64.

It's frequently desirable to get a printout of the monitor display, but unfortunately most of the manuals neglect to tell you how to do it. In most cases, it's very easy to get such a printout. Just try the following steps:

1. In direct mode, enter OPEN 4,4:CMD4 <RETURN>
2. Enter your machine language monitor. (On the 128, this is done by typing MONITOR <RETURN> or by pressing the F8 key.)
3. Type in the monitor command. If all is well, what normally would be displayed on your screen will be sent to your printer.

To avoid having funny things happen later on, go back to BASIC's direct mode and enter PRINT#4:CLOSE4 <RETURN>.
Richard Murphy
Tahlequah, Ok

Blue Chip printers: These popular printers use the same ribbons as the Commodore MPS 802.

If you have a program that doesn't list the Blue Chip as one of the printers it supports, set the program up for the Epson FX.
John Kreps
Grapevine, TX

***MicroIllustrator* tip:** In this Tech Sketch program, the magnify mode is very slow to move until the third or fourth time you hit the SHIFT key. Hitting and releasing SHIFT LOCK has the same result and never fails.
ZaphoddB
Q-Link

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Hardball: It's easier to hit the ball by just pushing the button instead of swinging high, low, left or right.
Cliff Congo
Manassas, VA

Hardball: When you're in the outfield, throw the ball to first base instead of to second. It gets there much faster.
Mark Bickle
Oregon, OH

Harrier Attack: At the beginning of the game, bring the Harrier down so it's just above the water's surface, then add thrust until you get in front of the battleship. Fire your rockets and watch your score soar up to 265,000 points. This will help you in the later stages of the game.
Donovan Botelho
Victorville, CA

Infiltrator: Get your spray ready while the guards are checking your ID outside the buildings. Many times the guard can sound the alarm before the spray takes effect.

It's a good idea not to use explosives outside the building, since the noise may alert the guards.

On the second board, always rescue the Professor first. If you blow up the laboratory first, the guards will almost always find your papers not in order.
Nathan Tison
Pontiac, MI

Kung Fu Master: To beat the Master on Level V: Two kicks going up and down alternately; two punches the same way; a drop kick and a low kick will finish him off. Practice Level V for a while, and pretty soon you'll be a master yourself.
Shane Dolha
Address Unknown

Labyrinth: In the hedge maze, it's important to take the bracelet. You'll need it later in the game.

In the Door Knockers room: ask knocker, hit knocker, insert bracelet, open door. You're now in the Stone Faces maze.

In the Wise Man's Garden: save the game, walk to the Wise Man, then "take." You now have a rule book for Sir Didymus. Ask Wise Man and he'll tell you how to get out. Give quarter. If he keeps saying something about "the hands of the clock and the path of the ninth hour," ask him two more times then "load game." This time he'll give the right answer when you ask him.
Keith Welshonse
Lynnwood, CA

Legacy of the Ancients: If you're having trouble finding coins for the exhibits, try going twice to some of the dungeons. Also when in a dungeon, always examine each hall for hidden traps.

Never carry all your money around with you.
Paul Cioletti
Manassas, VA

Legacy of the Ancients: When you're in the dungeon west of Eagle Hollow, watch out for the Knucklers, Giant Slugs and Danglers. Instead of fighting it out with them, use either a Magic Flame or a Firebolt; these monsters do severe damage in their own special way.

When you get out of the dungeon with the crown, go to the castle and look for the sceptre. It's behind the door that won't open with the stone key; use the iron key that the caretaker gave you.

After getting the sceptre, go to the caretaker, who will give you a magic ice. You have to use it when standing in front on the little river that separates the two parts of the castle while you're invisible.
Zi Wang
Kew Gardens, NY

Lode Runner: Having trouble passing the various levels? Tired of losing men needlessly on one particular screen? To advance to the next level of play, just press SHIFT/U, and all your problems will be solved!
Timothy Schmidt
New Iberia, LA

Ninja: To get a lot of extra points, keep going into the Akuma's Chambers, but don't use weapons. When you don't think you can get any more men, go down to Torii by the Sea.
Todd Gunnerson
Canaan, NH

The Pawn: To open the shed, get the metal key from under the mat in the Palace Garden. The wooden key opens the door in the Forest. To find the door, go to the forest clearing, go south and climb the tree.

To make light, you must do five things. First, take your shirt and tie it to your wristband, which stops the Guru from laughing at you. Second, go to the Guru, who will ask you to get him a drink of water; take his bowl. Third, go to the top of the mountain and put snow in the bowl. Return to the Guru and give him the bowl containing the water; he will give you a message. Finally, go to the forest clearing and examine the tree stump, where you'll find a bag containing three colored stones. Mix them together to form one glowing stone. Light, at last!

To move a boulder out of your path, tie your shirt to the hoe and rake to form a lever which will move the boulder.

The couch in the underground living room can be examined for Fergs. Take the hard hat before entering the mine.
Brian Lambert
Leisure City, FL

Planetfall: The curved metal bar is a magnet. Keep it away from access cards. To get the key, hold the magnet near the crevice; then drop the magnet to avoid all risk of erasures.

Floyd has an access card, so turn him off and search him.
Stephen E. Mynhier
Lake City, FL

Pure-Stat Baseball: After your player has been walked, watch how quickly he gets to first base. If he arrives just after the pitcher catches the ball, he should be able to steal second easily. If you put the Hit and Run on when attempting to steal, he'll have an even better chance.
Fred DePaoli
Hammond, IN

Rambo: On the first level, save your exploding arrows. Use throwing knives until you get the POW. Once you touch him and he disappears, use your exploding arrows to blast the trees on your way up to the chopper.

For an easy 3,000 points, go past the machine gun on the first level. Keep going on the other side of the building until it is out of the screen. Come back and touch the machine gun, collecting your 3,000 points!
Curtis MacPherson
Address Unknown

Rambo First Blood Part II: When you start this game, try running straight forward without shooting. If you're lucky, all the enemies will magically disappear until you reach the fort.
Jeff Ness
Address Unknown

Seven Cities of Gold: If you continuously attack the natives you will eliminate them. If you attempt to eliminate the Poor Hunter/Gatherer, the natives go into a strange slow-motion dance, during which time passes very rapidly. Once they start the dance, you should eliminate them as quickly as possible.
Richard Ambrose
Naples, FL

Skyfox: On the higher levels it's often wise just to head into an enemy unit, blow them away with missiles, then head for home for a new batch of missiles.
Richard Ambrose
Naples, FL

Spy Hunter: If you're in the desert or on the icy roads, follow the weapons van. As long as you follow it, the helicopter will not appear. When a new weapons van is about to appear, destroy the old one—otherwise the new one will never appear.
Quoc Nguyen
Tacoma, WA

Spy vs. Spy — The Island Caper: Plant coconut bombs and punji pits at the openings at the top and bottom of the screen (make sure you don't fall into your own traps). Your opponent will have no way of avoiding them.

Also, when your opponent has the three missile parts and is trying to get off the island and onto his sub, plant bombs and pits on the shores of the island.

If your enemy is looking for a missile part that you own, drop it near a tree and plant a snare right on top of it. The enemy will think he's getting a break when he sees the piece out in the open, but all of a sudden he'll be up in the tree.
Brian Larson
Delavan, WI

Summer Games II: The world records are on Track 18, Sector 13. You can change them if you have a track and sector editor. Make sure you do it on a backup, because one mistake can ruin your disk.
Mark Cosentino
Lincoln Park, NJ

Super Zaxxon: In the tunnel, the enemy planes will go slower if you keep the fire button down.

To get through the force field in the second scene, match the lines on the wall and on your altimeter. Go slightly higher than the line on your altimeter, and you can safely go through every shield until you reach the dragon. But watch out for obstacles that get in your way.

To destroy the dragon, put the altimeter to the fourth line and shoot him six times in the mouth.
Howard Weisbaum
New York, NY

Ultima II: To get gold easily, get a boat. To get a boat, get a blue tassel, then bring a pirate ship to land, get on top of it, press Board and move. Then use Fire to destroy him and all the other monsters you encounter.
Jason A. Nikolai
Mosinee, WI

Ultima III: There's no set solution to this game, even with these tips. Try forming a party and transfer all food, money and weapons to one member. Quit and save the game.

When you have everything you want, give bows to your two front men, providing they can handle them; bows hit targets at long distances.

If playing with a Cleric, give him 25 wisdom points—that will give you a major step in magic points.
Jimmy Prince
Howell, NJ

Ultima IV: The Undead spell uses Sulfurous Ash and Garlic. Cast it when fighting skeletons and ghosts.

The Gate Travel spell uses Sulfurous Ash, Black Pearl and Mandrake Root, and costs you 40 points.

Resurrection is the opposite of Kill, so it uses the Reagents not found in the Kill spell—Reagents A, B, C, D, E and H.
Patrick Lindsay
Heidelberg, Germany

Ultima IV: When getting Mandrake Root, get a horse and go to the single patch of swamp in the Bloody Plains. While on the patch, exit the horse and search the patch when both moons enter the new moon stage. Keep searching and finding Mandrake Root until the moons change their status. You can have up to 99 of each reagent, so I suggest you fill up on Mandrake and Nightshade.
Craig Massee
Address Unknown

Uridium: For infinite lives, load the game, reset the computer, then enter:

POKE 3427,187 <RETURN>
SYS 2304 <RETURN>

Adrian Zenker
Buenos Aires, Argentina

Winter Games: As soon as you start playing Hot Dog, put the joystick diagonally NW, holding it there for about a second. Then push it to the right and complete the flip. If done correctly, you'll glide in for a perfect landing and get a score of 10.
Todd Gunnerson
Canaan, NH

Wizard's Crown: To enter the third dungeon, you need the emerald key which you'll find in a skeleton on the second level of the old thieves guild. Once you enter, construct the golem staff and find the password to the fourth and final dungeon. The password is ROBIN.

To save time and trouble, avoid gnarled trees, wardpact demons, dragons and veteran adventurers.
Jason Rothstein
Quebec, Canada

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thing from each other: We want to make our lives easier to live. This feeling of teamwork has helped us get through the rough spots.

Our plans for the future include a variety of development possibilities. Being that all of our programmers program in assembly language and have extensive backgrounds, any of them could move into writing utilities or business software with virtually little or no learning curve. However, do not fret. We will always do games as long as loyal customers enjoy entertainment products.

This fall we will be releasing what I consider our third generation of software. Digitized sound and music will appear in most of our games, but what I am most excited about is our ability to scroll the screen around in a playing area of 50 to 100 screens.

Arcade machines have one purpose: to deliver a single game to the consumer for a quarter. Microcomputers, on the other hand, are very versatile.

Jermaine: Is it true that you worked on *Defender of the Crown*?

Lyndon: Yes, John Cutter and I programmed three of the four action sequences in the 64 version of the game. Bob Jacob, at Cinemaware, gave me a call one day. He wondered if I could get him out of a sticky situation. His programmer definitely needed some help in order to finish *Defender of the Crown* by its projected release date. He outlined what he wanted done, and we finished the job three weeks later.

Probably the most significant scenario of *Defender of the Crown* was the joust tournament. I liked it because we gave you the unique illusion of bouncing along on the back of a horse. This effect was actually pretty easy to generate. Basically you set the "Y" scroll register between 0 and 7 to make the computer image move up and down and start experimenting with different number combinations. After running a series of tests, I came up with the answer: 024677766420. When this sequence is repeated at a rapid rate of speed, one bounce after another takes place on the screen. The joust scenario also contains another unusual feature. As you charge your opponent, the other horse and rider are the only items in the picture that appear to get closer. Background objects like tents, the railing, etc. always stay exactly the same size. It's strange that most players aren't aware of this fact, but the sensation of riding the horse seems to camouflage this obvious attempt to simplify things.

There were two sword play animations in *Defender of the Crown*. John and I did the one where the knights are fighting inside the castle. Even though the game play of this Commodore 64 challenge could have been better, it's an improvement over that of the Amiga version. The final arcade sequence was the catapult scene. As each rock was fired at the castle wall, we had to visually construct a new wall (displaying more damage than the previous one). With both of us working together on these challenging mini-games, everything went smoothly, and we finished things up by the end of March.

Jermaine: How did you become involved with Capcom?

Lyndon: I met Joe Morici, Vice President of Sales and Marketing at Capcom, during the early days of 1987. We quickly negotiated a deal, where Lyndon and Associates would develop a series of microcomputer arcade game conversions (for them to market). By the way, this agreement has worked out well for both parties.

Jermaine: Tell me how a coin-op arcade game conversion is made.

Lyndon: First of all, we storyboard all of the things that have to be present in the game. Once the storyboards have been approved by the publisher, it's time to discuss the size of the computer players, all of the technical limitations, trade-offs, etc. When every detail of the computer game has been mapped out on paper (in terms of technical specifications), Capcom OKs things again before we actually begin the development process. As far as development time goes, 20% of it is used to generate the sounds and music, 25% goes into graphic design, and the remaining 55% is needed to program the code.

We also entertain visitors from Capcom about every 30-60 days. They come to see the progress we've made and tell us what they like and dislike about the product. I personally approve of these visits because it gets more people involved in the development process. If everything goes well, the game should be finished in six to nine months (depending upon the complexity of the project).

Jermaine: What are "trade-offs"?

Lyndon: Whenever we translate a coin-op theme to the microcomputer environment certain elements of the arcade game can never appear in the 64 program (because of memory restrictions). To compensate for these absences, we usually dress up the graphics and make things more attractive by adding some new ones. This is our way of giving the consumer the most product for his hard-earned dollar.

Hat Trick's programmed intelligence is a good example of how computer logic should be implemented in a game: it's very simple but effective.

Jermaine: What have you learned about coin-op arcade games in general?

Lyndon: To begin with, the standard video machine has from 1–2 megabytes of memory. This factor allows them to move a large number of objects around the screen at any given time. The graphics themselves are generally displayed and stored in a totally different manner than the way we perform the same operations on microcomputers. Everything is basically more cryptic in nature. Arcade games also contain approximately 16 dip switches. These switches allow us to enter a test mode, change the perspective of the game, advance to a particular level of play, etc. Their presence makes it easier to map out every inch of a game during a short period of time.

We're also discovering advanced digital sampling in some of the new machines. Digital sampling is a special technology where you take a particular sound in the real world, reduce it to a pattern of numbers that the computer understands, store that data in memory and have the ability to play it back as it originally sounded. Believe it or not, several home computer games already feature digital sampling sound effects, but the ones in coin-op machines are naturally more sophisticated.

Before we leave this subject, I'd like to give you another explanation of why these two systems are so drastically different. Arcade machines have one purpose: they are designed to deliver a single game to the consumer for the price of a quarter. Microcomputers, on the other hand, are very versatile. They are capable of performing a number of different tasks.

Jermaine: Would you share a few secrets about the making of *Speed Rumbler*?

Lyndon: That project forced me to develop the fastest scrolling effect I've done to date. I was also moving up to 32 objects on the screen at one time. *Speed Rumbler* is a good solid challenge, but we could have made it better by reducing the number of moving objects to 16 and improving the quality of graphics.

Jermaine: I understand *Hat Trick* is one of your favorite games. Why is that so?

Lyndon: *Hat Trick* had an interesting problem: it was the first program I had programmed at a clock speed faster than 60 game loops per second. In most computer games, we have something called a raster interrupt. Basically the system performs one task for a while, then it suddenly does something different. When that cycle has been completed, the computer either returns to performing the original task, or it does something else for a period of time. In my games I always like to know where the raster is on the screen. Being that I didn't have to move many objects, I elected to use a clock speed of 240 game loops per second. This approach gave me ultra-fluid player motion, while making it easy to simulate the sensation of skating on ice.

The *Hat Trick* computer logic is also easy to understand. First of all, skill levels were based on how quickly your opponent gathered information. If you were playing at a high skill level, for example, your adversary was processing data very quickly. In lower levels of play he performed the same operation but not as often. In other words, fast is smart and slow is dumb. His main objective was to go after the puck (wherever it was located on the ice).

Goalie logic was equally simple in nature. The goalie shifted his position to match the up and down movements of the puck. Once the puck was a certain distance from the goal, he became interactive and aggressively moved toward it. These rules of action were easy to enforce, and they made your opponent smart enough to give you a superior challenge. *Hat Trick*'s programmed intelligence is a good example of how computer logic should be implemented in a game: it's very simple but effective.

Jermaine: Can you give me a sneak preview of what lies ahead?

Lyndon: As you read this interview, some of these products may be on the shelves of your favorite computer store. Where Capcom's *1942* program had you shooting down Japanese aircraft, *1943* teleports you to the Battle of Midway. This time, you're going after ships as well as planes. *Sarge* (another Capcom release) is an interesting military game where the player must evade and destroy enemy tanks and helicopters. We're also working on a new joystick-driven "sword and sorcery" arcade game.

Another project is being done for the Gamestar division of Activision. Mike Suarez acted as producer of the project. Finally, *Street Fighter* is our latest and greatest. The game combines great animation with superior playability and is my all-time favorite.

Jermaine: I heard you recently took a trip to Japan. Why did you go and what did you learn from the experience?

Lyndon: During October of 1987, I spent a couple of weeks at the corporate headquarters of Capcom. I was there to study new methods of creating coin-op arcade conversions on home computer systems. After arriving at the airport, I was initially surprised to discover the cab drivers over there wore white gloves and drove Mercedes automobiles.

The Japanese programmers are equally eccentric. They were blunt and to the point when it came to talking about their work. I think that's partially due to the fact they have trouble speaking English. It's also interesting to note that they literally think in terms of right to left (the same way that they read). When I first examined the graphic format of their game code I had a tough time figuring it out.

> If you examine the latest marketing statistics, you will discover that 64 software sales have shown a steady increase over the last four quarters.

As far as developing software goes, some of their tools are good and some of them aren't. Our microcomputer artists' tools are generally better than those found in Japan.

One more thing should be mentioned here: there is a definite difference between Americanized Japanese food and traditional Japanese food. For a meal over there, I ate several marble-sized items with a pair of chopsticks. By the end of the first day, I was dying to get my hands on a Big Mac. Incidentally, the people of Japan are excellent hosts. They really go out of their way to entertain their guests.

While we're talking about my trip, it might be fun to compare the typical Japanese game developer with his counterpart here in the States. Microcomputer programmers in Japan generally earn around $30-40,000 a year, which is hard to compare to what we make in America. Different companies over here have different pay scales. Programmers in both countries work from 40–80 hours a week. Sometimes it becomes necessary to work even longer hours. As far as the standard of living goes, a large percentage of the Japanese programmers live at home with their families. If you saw the price of property in that country, you'd know why.

We recently took all of our employees to Disneyland for a day. Every week or two I order pizzas for lunch, so we can sit around and discuss what's going on in-house. I think I can safely say most of our competition (in the United States) does the same sort of things. In Japan, software companies are generally not as easygoing as their American cousins.

Jermaine: How do you write your games?

Lyndon: Our development process is done in two stages: (1) The assembler is operated on an IBM PC, and (2) the de-bugger, which is more or less an interactive de-bugger, runs simultaneously on both the PC and a Commodore 64. All source material is written on the IBM PC. We use the PC to get code into the 64, the systems interact with each other, and the program is gradually de-bugged. When the process is completed, the programmer sees the end results on the 64 only. This excellent assembler was developed by Ken Rose and Jack Thornton, while the de-bugger was written by Mike Schwartz.

Jermaine: Why are you still developing games for the Commodore 64?

Lyndon: If you examine the latest marketing statistics, you will discover that 64 software sales have shown a steady increase over the last four quarters. This information convinces me that the Commodore 64 will have a strong following for at least one more year. After that, I can only speculate what will happen. A lot of people have been following the ever-growing IBM PC market. I certainly hope as the game industry continues to write software for the PC, it doesn't lose sight of the valuable Commodore 64 consumer. I can tell you that I certainly will not.

By the way, Pacific Dataworks is looking for a few good men (and women). If you're a good Commodore 64 programmer with a lot of imagination and the guts to participate in a great adventure, write to Troy through *Commodore Magazine*. I'm sure he'd like to hear from you.

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> The abilities that are added by worn magical items may or may not be useful to all characters.

magical that you've come across in your travels so far is a rod. By waving the rod at the fissure, a crystal bridge appears and allows you to cross back and forth. By using the rod intelligently, you've solved a problem that could not have been done by ordinary means.

Worn Magical Items

Especially popular in role-playing games, magical items that are worn tend to add to the abilities of the character who is wearing them. These items can include: rings, clothes, armor, hats, shoes, amulets and necklaces. These items usually take effect only when worn and show no magical promise when not worn. An indication of some kind that the item is magical is usually given by the game when the item is first put on or when it is found. In either case, these objects can have one of two effects: increase the natural abilities of the character wearing the item or give the character extra abilities that he didn't have before.

You often hear in role-playing games that a character possesses a +2 sword or other weapon or item. Also, each character has certain values associated with the abilities that he has. The +2 means that when a weapon or item is used a certain ability of the character is increased by two points. Certain magical items that are worn help to increase some abilities. In particular, certain armor or an amulet may increase the defense or intelligence ability respectively of the character by a certain number of points. If a battle occurs, then that character may be more prepared for the scuffle because his defense rating was increased by four points.

In the same way, when it comes to using knowledge to find out something, the truth may come quicker because the amulet raised the intelligence ability by five points.

The opposite may also occur in both cases. Worn items may actually decrease abilities as well as make them better. The end result depends on the particular item. If you can evaluate the object before using it, do it—because a detrimental effect is not worth the gamble.

Other worn items tend to add abilities to a character that he never had before. These abilities are more often special characteristics that are magical in nature, rather than the addition to standard abilities like defense and intelligence. Depending on the character, the magical ability may or may not be effective. In the case of a gnome, a ring that makes the wearer into a gnome is useless. But, in the case of a deaf human being, a necklace that restores hearing is most desirable. As you can see, the abilities that are added by worn magical items may or may not be useful to all characters.

> From "hocus pocus" to "abracadabra," magic words or phrases have been the mainstay with magicians throughout the centuries.

The popular *King's Quest* offers a good example of the use of a worn magical item that adds a special power to the wearer, while at the same time decreases another ability. The person who rubs the magical ring while wearing it in *King's Quest* turns invisible. However, that same person loses points in the game, something that indicates that maybe there is another way to solve the current puzzle without turning invisible. Rubbing the ring adds an ability (invisibility) and decreases a rating (score). Such a double effect is an indication that there may be two ways to solve a puzzle in the game or that you have to weigh the decreases and increases in the game to determine the right combination of each that will give a winning solution.

Magic Words

From "hocus pocus" to "abracadabra," magic words or phrases have been the mainstay of magicians throughout the centuries. Ancient cultures had medicine men who recited incantations to perform various acts. Modern days see magicians trying to steer away from the trite words and language, but a "presto" seems to pop up every now and then anyway. What comes out of this is that words sometimes have more power than magical objects, if the faith put into believing that the words will work is strong. Anyone who recites a spell without believing its potency will cause the spell to fail as a testament to his disbelief. In the same way, confidence in using the magical words offers an extra push. Unfortunately, in most adventure games, this belief in the words is avoided—just saying the magic word causes its result to take place.

> Some games are laced with magical items and spells that aren't really needed to win the game.

A good example of use of magical words is in *Arazok's Tomb*. Saying "rezrathron" conjures spirits. Saying "tnahcne" enchants a small statue. Saying "light" makes a candle's flame come to life. Unfortunately, only the word "light" is actually of real use in the game. You do need to light a candle. In the cases of the other two words, upon reciting them, their professed effect doesn't happen, but a message is given to the player about something else in the game.

This example shows that although the ability for magic is there, it may not be necessary to complete the game. This is often the case. Some games are laced with magical items and spells that aren't really needed to win the game. They are simply there to entertain or confuse the player and to offer more of a challenge in the game. Regardless of the result, the way to use magical words is to simply recite them by whatever means the adventure allows speech. Then and only then will the power of the words be realized.

In *Blade of Blackpoole,* if you type in the word "regnilo" when with the lizard in the lake, all of your objects will be lost. The message here is that you shouldn't expect every magical word to be beneficial to your situation. If this were the case, then every time you used magic, you would expect the result to make the game easier for you. Then you would run around casting spells and using magic, with no check on your actions. Magic that doesn't work or magic that works against you is a necessary evil in the world of adventure games to add checks and balances to situations that otherwise would be too easy or too hard. Just remember to use the magical words once to see what they do and only again where they are meant to be used.

Miscellaneous Magic

All of the things I've talked about so far have been the major appearances of magic in adventure games. Now come the not-so-obvious forms of magic. Because of the various ways in which magic is presented in a game (if at all) by the author, there

are so many uses of it that it would be very hard to describe all of the methods. Because magic deals with the unreal, there are no laws that dictate whether a certain type is valid or not. Nevertheless, here are some of the other ways that magic is presented to adventure game lovers.

Sometimes, it's not so much how you use a magic item, but just the fact that you are holding it or are touching it. Just like Indiana Jones, in his first movie, when he lifted the idol that started the huge boulder rolling, merely touching a magical object causes it to work. Touching a crystal ball in some games will cause it to light up and begin showing the future or past. The only way to find out whether to touch an item or not is by touching it and seeing what happens. If the object harms you, return to a previously saved position and learn from your mistakes. Otherwise, note the result of your touching the item. In the case of a touch-sensitive magical item, you can't prepare for encountering it—you can only use intelligence to determine what to do after you have set off the item. That answer is game-dependent.

If you carry a certain item into a room, it becomes active. In *Adventure,* if you try to catch the bird while holding the magical rod I talked about earlier, you can't do it. This is because the bird is afraid of the rod. However, if you drop the rod first, you can catch the bird. Again, you can't prepare for the effect that the item has. A good result of having an item spring to life when you enter a specific location is that you find out that it's magical. This is also true of touching an object. Just be prepared to run in case the object that springs to life as a weapon and turns on you!

Charms, both good luck and bad, are important in some games to ward off evil (or good). The only way to tell if the charm is working is to put yourself in a situation where you know the outcome is determined by luck. If your charm works, for either bad or good, then you know that it was a good thing to have along on your travels.

Wishbringer is a perfect example of a game with a charm in it. The stone named in the title of the game has many powers. When you wish for one of these powers, you must be holding some related item. If holding a horseshoe, you can wish for luck. If holding an umbrella, you can wish for rain. This game is an example of magic brought about by possession of a certain item. Knowing what to carry makes the magic effective. Again, we are faced with an example that illustrates the most important rule regarding magic in adventure games: knowing what the item does and what the magic is intended for is half the battle in solving the magic-related puzzles in the adventure.

In addition to specific objects that are magical in a game, there are also magical people, creatures and rooms. Any adventure that claims to be in a world dominated by or supporting of magic should have at least one example from one of these magical forms, if not all. Most adventures have some kind of evil or good wizard that you have to get past at some point in the game. If you think about it, if you perform magic in an adventure, you are a magical person too. A good adventure will present you with alternate magical characters with whom you can interact.

Creatures and rooms are a different story. Although you and other characters in the game may use magic, there may not be members of the animal world that are affected by magic. Some game authors desire to leave magic only to human beings and leave the animal kingdom alone. This is a valid direction to take, making the game simpler to write. More likely is the inclusion of some kind of magical mascot (usually a bird for wizards) or enemy that is a creature, either legendary (and thus not real) or normal (with magical qualities). These creatures may offer extra substance to the game and some unusual puzzles that involve the removal of such enchanted creatures.

Magic rooms are usually seen in at least one point in the game. If the adventure is a graphic one, you can usually tell from the picture whether you have entered a special room. In text adventures, you have to rely on a description. Most of the time, magic locations are protected from normal entry by magic barriers or are accessed through hidden or magically created (portals, etc.) entrances. Magic locations usually pop up toward the end of the game. Sometimes, reaching a magical room is the goal of a game. In either case, expect a lot of strange things to happen in these places, for if your surroundings are enchanted, then anything goes.

Magical vehicles are not used as much in adventure games as I'd wish, but nevertheless are very interesting. They usually require some sort of special knowledge to work and may transport you to other times or just to other locations in an instant. Typical of time travel is the time machine in *Zork III*. You find it in the technology museum and must push it to the jewel room in the museum. After examining the time machine, you notice a dial with numbers on it. Turning the dial and pushing a button will transport you to the time on the dial. By setting the dial to 776, you travel backwards in time to the past and find a treasure in the jewel room in the year 776. In this example, the magic vehicle was easily controlled once you knew how. This is the key to working any magical vehicle. Often, you have to look hard for the directions to use the vehicle, but after you find them the rest goes smoothly.

Another example of a magical vehicle requires no knowledge of operation at all. In *Dragon's Lair,* one of the sequences requires you to ride a horse that has come alive and gone crazy when you sit on it. As well as a magical vehicle, this example also illustrates something magical that is activated with touch. As you can see, some magic transcends categories and reveals an entirely new form of magic that combines aspects of different effects.

Finally, magical items are sometimes the goal of an adventure. For instance, most role-playing games are presented as quests for some object that is the focus of the travels and the end of the adventure. Role-playing games lend themselves well to such a journey because of the differences between characters and the camaraderie that results. *Questron* and *Faery Tale Adventure* are both games that involve a magical item in their goal. In *Questron,* you must find the renegade sorcerer, Mantor, and steal back the book of evil magic, rendering him powerless. In *Faery Tale Adventure,* you must find the special weapon that will defeat the evil necromancer. In both cases, the quest is long and full of mini-quests along the way that lead to the discovery of the magical item.

Magic was brought alive by the magicians of the 19th and 20th centuries who performed their acts for audiences of all types. With the advent of computers and inspiration of games like Dungeons and Dragons that are played entirely on paper, magic forged its way into new frontiers by becoming condensed on floppy disks. The next step is to make that magic more realistic by using the technological advances in better microprocessors, like the 68000, and CDI technology. Just as real-life effects get bigger, better and more mystical—like the disappearance of the Statue of Liberty by David Copperfield—the computer world magic must and will become just as amazing. Until then, boot up a disk and pretend you're Merlin.

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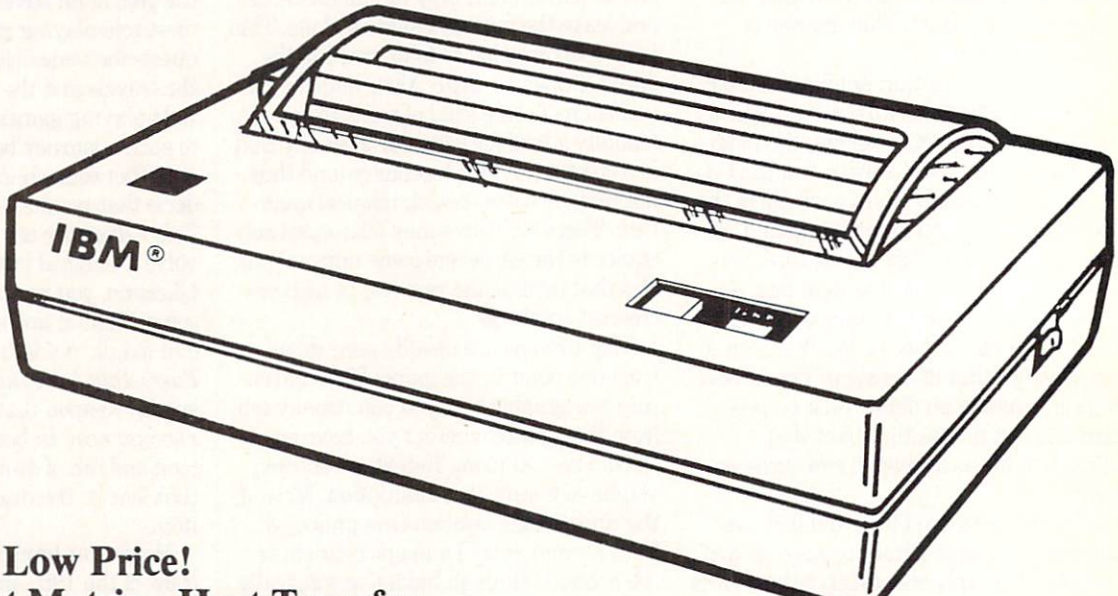
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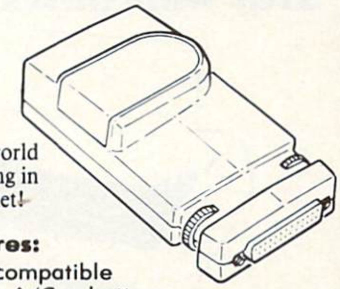
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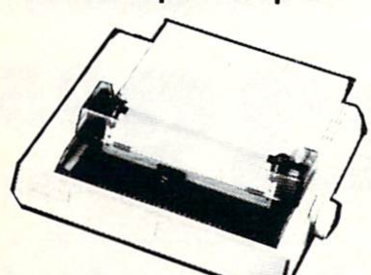
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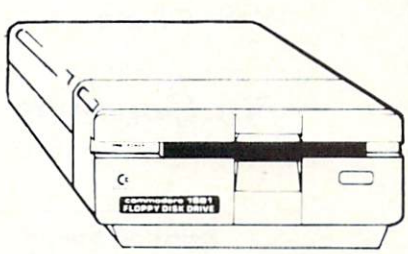
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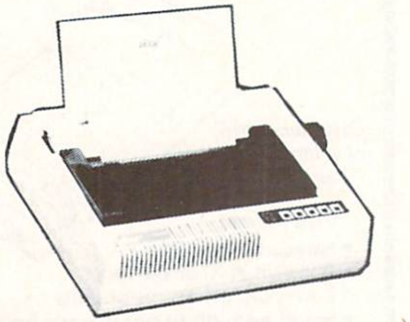
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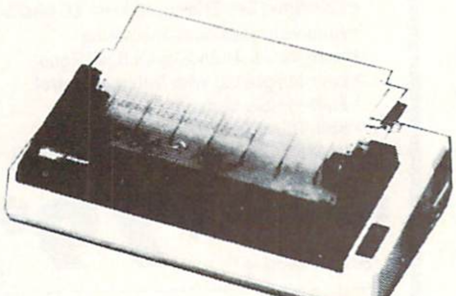
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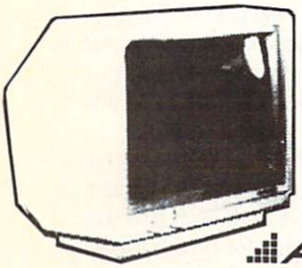
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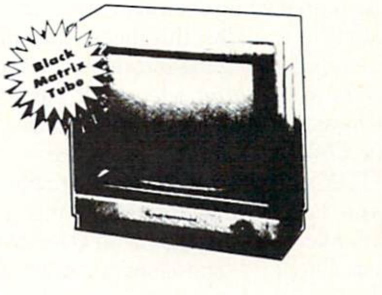
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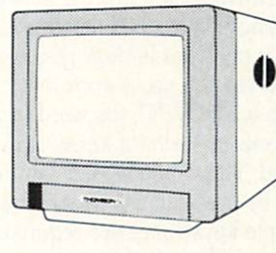
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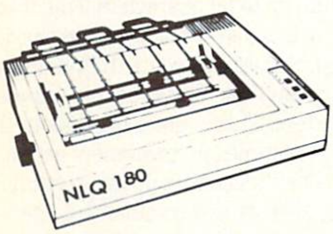
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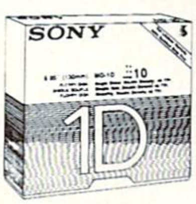
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The programs which appear in this magazine have been run, tested and checked for bugs and errors. After a program is tested, it is printed on a letter quality printer with some formatting changes. This listing is then photographed directly and printed in the magazine. Using this method ensures the most error-free program listings possible.

Whenever you see a word inside brackets, such as [DOWN], the word represents a keystroke or series of keystrokes on the keyboard. The word [DOWN] would be entered by pressing the cursor-down key. If multiple keystrokes are required, the number will directly follow the word. For example, [DOWN4] would mean to press the cursor-down key four times. If there are multiple words within one set of brackets, enter the keystrokes directly after one another. For example, [DOWN, RIGHT2] would mean to press the cursor-down key once and then the cursor-right key twice. Note: Do not enter the commas.

In addition to these graphic symbols, the keyboard graphics are all represented by a word and a letter. The word is either SHFT or CMD and represents the SHIFT key or the Commodore key. The letter is one of the letters on the keyboard. The combination [SHFT E] would be entered by holding down the SHIFT key and pressing the E. A number following the letter tells you how many times to type the letter. For example, [SHFT A4,CMD B3] would mean to hold the SHIFT key and press the A four times, then hold down the Commodore key and press the B three times.

The following chart tells you the keys to press for any word or words inside of brackets. Refer to this chart whenever you aren't sure what keys to press. The little graphic next to the keystrokes shows you what you will see on the screen.

SYNTAX ERROR

This is by far the most common error encountered while entering a program. Usually (sorry folks) this means that you have typed something incorrectly on the line the syntax error refers to. If you get the message "?Syntax Error Break In Line 270", type LIST 270 and press RETURN. This will list line 270 to the screen. Look for any non-obvious mistakes like a zero in place of an O or vice-versa. Check for semicolons and colons reversed and extra or missing parenthesis. All of these things will cause a syntax error.

There is only one time a syntax error will tell you the "wrong" line to look at. If the line the syntax error refers to has a function call (i.e., FN A(3)), the syntax error may be in the line that defines the function, rather than the line named in the error message. Look for a line near the beginning of the program (usually) that has DEF FN A(X) in it with an equation following it. Look for a typo in the equation part of this definition.

ILLEGAL QUANTITY ERROR

This is another common error message. This can also be caused by a typing error, but it is a little harder to find. Once again, list the line number that the error message refers to. There is probably a poke statement on this line. If there is, then the error is referring to what is trying to be poked. A number must be in the range of zero to 255 to be poke-able. For example, the statement POKE 1024,260 would produce an illegal quantity error because 260 is greater than 255.

Most often, the value being poked is a variable (A,X...). This error is telling you that this variable is out of range. If the variable is being read from data statements, then the problem is somewhere in the data statements. Check the data statements for missing commas or other typos.

If the variable is not coming from data statements, then the problem will be a little harder to find. Check each line that contains the variable for typing mistakes.

OUT OF DATA ERROR

This error message is always related to the data statements in a program. If this error occurs, it means that the program has run out of data items before it was supposed to. It is usually caused by a problem or typo in the data statements. Check first to see if you have left out a whole line of data. Next, check for missing commas between numbers. Reading data from a page of a magazine can be a strain on the brain, so use a ruler or a piece of paper or anything else to help you keep track of where you are as you enter the data.

OTHER PROBLEMS

It is important to remember that the 64 and the PET/CBM computers will only accept a line up to 80 characters long. The VIC 20 will accept a line up to 88 characters long. Sometimes you will find a line in a program that runs over this number of characters. This is not a mistake in the listing. Sometimes programmers get so carried away crunching programs that they use abbreviated commands to get more than 80 (or 88) characters on one line. You can enter these lines by abbreviating the commands when you enter the line. The abbreviations for BASIC commands are on pages 133-134 of the VIC 20 user guide and 130-131 of the Commodore 64 user's guide.

If you type a line that is longer than 80 (or 88) characters, the computer will act as if everything is ok, until you press RETURN. Then, a syntax error will be displayed (without a line number). Many people write that the computer gives them a syntax error when they type the line, or that the computer refuses to accept a line. Both of these problems are results of typing a line of more than 80 (or 88) characters.

"[HOME]" = UNSHIFTED CLR/ HOME
"[CLEAR]" = SHIFTED CLR/HOME
"[DOWN]" = CURSOR DOWN
"[UP]" = CURSOR UP
"[RIGHT]" = CURSOR RIGHT
"[LEFT]" = CURSOR LEFT
"[RVS]" = CONTROL 9
"[RVOFF]" = CONTROL 0
"[BLACK]" = CONTROL 1
"[WHITE]" = CONTROL 2
"[RED]" = CONTROL 3
"[CYAN]" = CONTROL 4
"[PURPLE]" = CONTROL 5
"[GREEN]" = CONTROL 6
"[BLUE]" = CONTROL 7
"[YELLOW]" = CONTROL 8
"[ORANGE]" = COMMODORE 1
"[BROWN]" = COMMODORE 2
"[L. RED]" = COMMODORE 3
"[GRAY1]" = COMMODORE 4
"[GRAY2]" = COMMODORE 5
"[L. GREEN]" = COMMODORE 6
"[L. BLUE]" = COMMODORE 7
"[GRAY3]" = COMMODORE 8
"[F1]" = F1
"[F2]" = F2
"[F3]" = F3
"[F4]" = F4
"[F5]" = F5
"[F6]" = F6
"[F7]" = F7
"[F8]" = F8
"[POUND]" = ENGLISH POUND
"[SHFT ^]" = PI SYMBOL
"[↑]" = UP ARROW

GRAPHIC SYMBOLS WILL BE REPRESENTED AS EITHER THE LETTERS SHFT (SHIFT) AND A KEY ("[SHFT Q,SHFT J,SHFT D,SHFT S]") OR THE LETTERS CMDR (COMMODORE) AND A KEY ("[CMDR Q,CMDR G,COMDR Y,CMDR H]"). IF A SYMBOL IS REPEATED, THE NUMBER OF REPITITIONS WILL BE DIRECTLY AFTER THE KEY AND BEFORE THE COMMA ("[SPACE3,SHFT S4,CMDR M2]").

THE PROGRAM WON'T RUN!!

This is the hardest of problems to resolve; no error message is displayed, but the program just doesn't run. This can be caused by many small mistakes typing a program in. First check that the program was written for the computer you are using. Check to see if you have left out any lines of the program. Check each line of the program for typos or missing parts. Finally, press the RUN/STOP key while the program is "running". Write down the line the program broke at and try to follow the program backwards from this point, looking for problems.

IF ALL ELSE FAILS

You've come to the end of your rope. You can't get the program to run and you can't find any errors in your typing. What do you do? As always, we suggest that you try a local user group for help. In a group of even just a dozen members, someone is bound to have typed in the same program. The user group may also have the program on a library disk and be willing to make a copy for you.

If you do get a working copy, be sure to compare it to your own version so that you can learn from your errors and increase you understanding of programming.

If you live in the country, don't have a local user group, or you simply can't get any help, write to us. If you do write to us, include the following information about the program you are having problems with:

The name of the program
The issue of the magazine it was in
The computer you are using
Any error messages and the line numbers
Anything displayed on the screen
A printout of your listing (if possible)

All of this information is helpful in answering your questions about why a program doesn't work. A letter that simply states "I get an error in line 250 whenever I run the program" doesn't give us much to go on. Send your questions to:

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ATTN: Program Problem

Have fun with the programs!

HOW TO USE THE MAGAZINE ENTRY PROGRAMS

The Magazine Entry Programs on the next pages are two BASIC machine language programs that will assist you in entering the programs in this magazine correctly. There are versions for both the Commodore 64 and the Commodore 128. Once the program is in place, it works its magic without you having to do anything else. The program will not let you enter a line if there is a typing mistake on it, and better yet, it identifies the kind of error for you.

Getting Started

Type in the Magazine Entry Program carefully and save it as you go along (just in case). Once the whole program is typed in, save it again on tape or disk. Now RUN the program. The word POKING will appear on the top of the screen with a number. The number will increment from 49152 up to 49900 (4864-5545 on the 128) and just lets you know that the program is running. If everything is ok, the program will finish running and say DONE. Then type NEW. If there is a problem with the data statements, the program will tell you where to find the problem. Otherwise the program will say "mistake in data statements." Check to see if commas are missing, or if you have used periods instead of commas. Also check the individual data items.

Once the program has run, it is in memory ready to go. To activate the program type SYS49152 (SYS4864 on the 128), and press RETURN. You are now ready to enter the programs from the magazine. To disable the Entry Program, just type KILL [RETURN] on the 64 or SYS4867 on the 128.

The checksums for each line are the same for both the 64 and 128, so you can enter your 64 programs on the 128 if you'd like.

Typing the Programs

All the BASIC program listings in this magazine that are for the 64 or 128 have an apostrophe followed by four letters at the end of the line (e.g., 'ACDF). If you plan to use the Magazine Entry Program to enter your programs, the apostrophe and letters **should** be entered along with the rest of the line. This is a checksum that the Magazine Entry Program uses.

Enter the line and the letters at the end and then press RETURN, just as you normally would.

If the line is entered correctly, a bell is sounded and the line is entered into the computer's memory (without the characters at the end).

If a mistake was made while entering the line, a noise is sounded and an error message is displayed. Read the error message, then press any key to erase the message and correct the line.

IMPORTANT

If the Magazine Entry Program sees a mistake on a line, it **does not** enter that line into memory. This makes it impossible to enter a line incorrectly.

Error Messages and What They Mean

There are five error messages that the Magazine Entry Program uses. Here they are, along with what they mean and how to fix them.

NO CHECKSUM: This means that you forgot to enter the apostrophe and the four letters at the end of the line. Move the cursor to the end of the line you just typed and enter the checksum.

QUOTE: This means that you forgot (or added) a quote mark somewhere in the line. Check the line in the magazine and correct the quote.

KEYWORD: This means that you have either forgotten a command or spelled one of the BASIC keywords (GOTO, PRINT. .) incorrectly. Check the line in the magazine again and check your spelling.

OF CHARACTERS: This means that you have either entered extra characters or missed some characters. Check the line in the magazine again. This error message will also occur if you misspell a BASIC command, but create another keyword in doing so. For example, if you misspell PRINT as PRONT, the 64 sees the letter P and R, the BASIC keyword ON and then the letter T. Because it sees the keyword ON, it thinks you've got too many characters, instead of a simple misspelling. Check spelling of BASIC commands if you can't find anything else wrong.

UNIDENTIFIED: This means that you have either made a simple spelling error, you typed the wrong line number, or you typed the checksum incorrectly. Spelling errors could be the wrong number of spaces inside quotes, a variable spelled wrong, or a word misspelled. Check the line in the magazine again and correct the mistake.

The Magazine Entry Programs are available on disk, along with other programs in this magazine, for $9.95. To order, contact Loadstar at 1-800-831-2694.

```
10 PRINT"[CLEAR]POKING -";
20 P=49152 :REM $C000  (END AT
   49900/$C2EC)
30 READ A$:IF A$="END"THEN 110
40 L=ASC(MID$(A$,2,1))
50 H=ASC(MID$(A$,1,1))
60 L=L-48:IF L>9 THEN L=L-7
70 H=H-48:IF H>9 THEN H=H-7
80 PRINT"[HOME,RIGHT12]"P;
90 IF H>15 OR L>15 THEN PRINT
   :PRINT"DATA ERROR IN LINE";
   1000+INT((P-49152)/8):STOP
100 B=H*16+L:POKE P,B:T=T+B:P=P+1
    :GOTO 30
110 IF T<>86200 THEN PRINT
    :PRINT"MISTAKE IN DATA --> CHECK
    DATA STATEMENTS":END
120 PRINT"DONE":END
1000 DATA 4C,1F,C0,00,00,00,00,00
1001 DATA 00,00,00,00,00,0D,00,21
1002 DATA C1,27,C1,2F,C1,3F,C1,4C
1003 DATA C1,EA,EA,EA,4C,54,C0,A2
1004 DATA 05,BD,19,C0,95,73,CA,10
1005 DATA F8,60,60,A0,03,B9,00,02
1006 DATA D9,04,C1,D0,F5,88,10,F5
1007 DATA A0,05,B9,A2,E3,99,73,00
1008 DATA 88,10,F7,A9,00,8D,18,D4
1009 DATA 4C,EF,C0,E6,7A,D0,02,E6
1010 DATA 7B,4C,79,00,A5,9D,F0,F3
1011 DATA A5,7A,C9,FF,D0,ED,A5,7B
1012 DATA C9,01,D0,E7,20,2B,C0,AD
1013 DATA 00,02,20,74,C0,90,DC,A0
1014 DATA 00,4C,A9,C1,C9,30,30,06
1015 DATA C9,3A,10,02,38,60,18,60
1016 DATA C8,B1,7A,C9,20,D0,03,C8
1017 DATA D0,F7,B1,7A,60,18,C8,B1
1018 DATA 7A,F0,37,C9,22,F0,F5,6D
1019 DATA 03,C0,8D,03,C0,AD,04,C0
1020 DATA 69,00,8D,04,C0,4C,8E,C0
1021 DATA 18,6D,05,C0,8D,05,C0,90
1022 DATA 03,EE,06,C0,EE,09,C0,4C
1023 DATA CE,C1,18,6D,08,C0,8D,08
1024 DATA C0,90,03,EE,07,C0,EE,0A
1025 DATA C0,60,0A,A8,B9,0F,C0,85
1026 DATA FB,B9,10,C0,85,FC,A0,00
1027 DATA A9,12,20,D2,FF,B1,FB,F0
1028 DATA 06,20,D2,FF,C8,D0,F6,20
1029 DATA BC,C2,20,E4,FF,F0,FB,A0
1030 DATA 18,B9,08,C1,20,D2,FF,88
1031 DATA 10,F7,68,68,A9,00,8D,00
1032 DATA 02,4C,74,A4,4B,49,4C,4C
1033 DATA 91,91,0D,20,20,20,20,20
1034 DATA 20,20,20,20,20,20,20,20
1035 DATA 20,20,20,20,20,20,20,91
1036 DATA 0D,51,55,4F,54,45,00,4B
1037 DATA 45,59,57,4F,52,44,00,23
1038 DATA 20,4F,46,20,43,48,41,52
1039 DATA 41,43,54,45,52,53,00,55
1040 DATA 4E,49,44,45,4E,54,49,46
1041 DATA 49,45,44,00,4E,4F,20,43
1042 DATA 48,45,43,4B,53,55,4D,00
1043 DATA C8,B1,7A,D0,FB,84,FD,C0
1044 DATA 09,10,03,4C,84,C1,88,88
1045 DATA 88,88,88,B1,7A,C9,27,D0
1046 DATA 13,A9,00,91,7A,C8,A2,00
1047 DATA B1,7A,9D,3C,03,C8,E8,E0
1048 DATA 04,D0,F5,60,A9,04,4C,CA
1049 DATA C0,A0,00,B9,00,02,99,40
1050 DATA 03,F0,F0,C8,D0,F5,A0,00
1051 DATA B9,40,03,F0,E6,99,00,02
1052 DATA C8,D0,F5,20,96,C1,4C,12
1053 DATA C2,A0,09,A9,00,99,03,C0
1054 DATA 8D,3C,03,88,10,F7,A9,80
1055 DATA 85,02,A0,00,20,58,C1,20
1056 DATA 89,C1,20,ED,C1,E6,7A,E6
1057 DATA 7B,20,7C,A5,A0,00,20,80
1058 DATA C0,F0,D0,24,02,F0,06,4C
1059 DATA A8,C0,4C,CE,C1,C9,22,D0
1060 DATA 06,20,8D,C0,4C,CE,C1,20
1061 DATA BA,C0,4C,CE,C1,A0,00,B9
1062 DATA 00,02,20,74,C0,C8,90,0A
1063 DATA 18,6D,07,C0,8D,07,C0,4C
1064 DATA EF,C1,88,A2,00,B9,00,02
1065 DATA 9D,00,02,F0,04,E8,C8,D0
1066 DATA F4,60,18,AD,09,C0,69,41
1067 DATA 8D,09,C0,38,AD,0A,C0,E9
1068 DATA 19,90,06,8D,0A,C0,4C,1C
1069 DATA C2,AD,0A,C0,69,41,8D,0A
1070 DATA C0,AD,03,C0,6D,05,C0,48
1071 DATA AD,04,C0,6D,06,C0,8D,0C
1072 DATA C0,68,6D,08,C0,8D,0B,C0
1073 DATA AD,0C,C0,6D,07,C0,8D,0C
1074 DATA C0,38,E9,19,90,06,8D,0C
1075 DATA C0,4C,52,C2,AD,0C,C0,69
1076 DATA 41,8D,0C,C0,AD,0B,C0,E9
1077 DATA 19,90,06,8D,0B,C0,4C,67
1078 DATA C2,AD,0B,C0,69,41,8D,0B
1079 DATA C0,A0,01,AD,09,C0,CD,3C
1080 DATA 03,D0,20,C8,AD,0A,C0,CD
1081 DATA 3D,03,D0,17,C8,AD,0B,C0
1082 DATA CD,3E,03,D0,0E,AD,0C,C0
1083 DATA CD,3F,03,D0,06,20,CC,C2
1084 DATA 4C,4B,C0,98,48,68,4C,CA
1085 DATA C0,A9,20,8D,00,D4,8D,01
1086 DATA D4,A9,09,8D,05,D4,A9,0F
1087 DATA 8D,18,D4,60,20,A9,C2,A9
1088 DATA 81,20,DF,C2,A9,80,20,DF
1089 DATA C2,4C,D9,C2,20,A9,C2,A9
1090 DATA 11,20,DF,C2,A9,10,20,DF
1091 DATA C2,A9,00,8D,04,D4,60,8D
1092 DATA 04,D4,A2,70,A0,00,88,D0
1093 DATA FD,CA,D0,FA,60,END
```

END

```
5 TRAP 200
10 PRINT"[CLEAR]POKING -";
20 P=4864 :REM $1300  (END AT
   5545/$15A9)
30 READ A$:IF A$="END"THEN 110
80 PRINT"[HOME,RIGHT12]"P;
100 B=DEC(A$):POKE P,B:T=T+B:P=P+1
    :GOTO 30
110 IF T<>59382 THEN PRINT
    :PRINT"MISTAKE IN DATA --> CHECK
    DATA STATEMENTS":END
120 PRINT"DONE":END
200 PRINT:PRINT"DATA ERROR IN LINE";
    1000+INT((P-4864)/8):END
1000 DATA 4C,1E,13,4C,3A,13,00,00
1001 DATA 8E,00,F7,00,42,41,51,57
1002 DATA 0D,00,0D,43,08,14,0E,14
1003 DATA 16,14,26,14,33,14,A9,00
1004 DATA 8D,00,FF,AD,04,03,8D,12
1005 DATA 13,AD,05,03,8D,13,13,A2
1006 DATA 4A,A0,13,8E,04,03,8C,05
1007 DATA 03,60,AD,12,13,8D,04,03
1008 DATA AD,13,13,8D,05,03,60,6C
1009 DATA 12,13,A5,7F,D0,F9,AD,00
1010 DATA 02,20,5B,13,90,F1,A0,00
1011 DATA 4C,6F,14,C9,30,30,06,C9
1012 DATA 3A,10,02,38,60,18,60,C8
1013 DATA B1,3D,C9,20,D0,03,C8,D0
1014 DATA F7,B1,3D,60,18,C8,B1,3D
1015 DATA F0,35,C9,22,F0,F5,6D,06
1016 DATA 13,8D,06,13,AD,07,13,69
1017 DATA 00,8D,07,13,4C,75,13,18
1018 DATA 6D,08,13,8D,08,13,90,03
1019 DATA EE,09,13,EE,0C,13,60,18
1020 DATA 6D,0B,13,8D,0B,13,90,03
1021 DATA EE,0A,13,EE,0D,13,60,0A
1022 DATA A8,B9,14,13,85,FB,B9,15
1023 DATA 13,85,FC,A0,00,8C,00,FF
1024 DATA A9,12,20,D2,FF,B1,FB,F0
1025 DATA 06,20,D2,FF,C8,D0,F6,20
1026 DATA 79,15,20,A3,15,20,E4,FF
1027 DATA F0,FB,A0,1B,B9,EF,13,20
1028 DATA D2,FF,88,10,F7,68,68,A9
1029 DATA 00,8D,00,02,4C,B7,4D,91
1030 DATA 91,0D,20,20,20,20,20,20
1031 DATA 20,20,20,20,20,20,20,20
1032 DATA 20,20,20,20,20,20,91,0D
1033 DATA 51,55,4F,54,45,00,4B,45
1034 DATA 59,57,4F,52,44,00,23,20
1035 DATA 4F,46,20,43,48,41,52,41
1036 DATA 43,54,45,52,53,00,55,4E
1037 DATA 49,44,45,4E,54,49,46,49
1038 DATA 45,44,00,4E,4F,20,43,48
1039 DATA 45,43,4B,53,55,4D,00,C8
1040 DATA B1,3D,D0,FB,98,30,04,C9
1041 DATA 06,30,1E,88,88,88,88,88
1042 DATA B1,3D,C9,27,D0,13,A9,00
1043 DATA 91,3D,C8,A2,00,B1,3D,9D
1044 DATA 00,0B,C8,E8,E0,04,D0,F5
1045 DATA 60,4C,5C,15,4C,C5,14,A0
1046 DATA 09,A9,00,99,06,13,8D,00
1047 DATA 0B,88,10,F7,A9,80,85,FD
1048 DATA A0,00,20,3F,14,20,AE,14
1049 DATA 20,0D,43,84,FA,A0,FF,20
1050 DATA 67,13,F0,D8,24,FD,F0,06
1051 DATA 20,8F,13,4C,8F,14,C9,22
1052 DATA D0,06,20,74,13,4C,8F,14
1053 DATA 20,9F,13,4C,8F,14,A0,00
1054 DATA B9,00,02,20,5B,13,C8,90
1055 DATA 0A,18,6D,0A,13,8D,0A,13
1056 DATA 4C,B0,14,88,60,18,AD,0C
1057 DATA 13,69,41,8D,0C,13,38,AD
1058 DATA 0D,13,E9,19,90,06,8D,0D
1059 DATA 13,4C,CF,14,AD,0D,13,69
1060 DATA 41,8D,0D,13,AD,06,13,6D
1061 DATA 08,13,48,AD,07,13,6D,09
1062 DATA 13,8D,0F,13,68,6D,0B,13
1063 DATA 8D,0E,13,AD,0F,13,6D,0A
1064 DATA 13,8D,0F,13,38,E9,19,90
1065 DATA 06,8D,0F,13,4C,05,15,AD
1066 DATA 0F,13,69,41,8D,0F,13,AD
1067 DATA 0E,13,E9,19,90,06,8D,0E
1068 DATA 13,4C,1A,15,AD,0E,13,69
1069 DATA 41,8D,0E,13,A0,01,AD,0C
1070 DATA 13,CD,00,0B,D0,20,C8,AD
1071 DATA 0D,13,CD,01,0B,D0,17,C8
1072 DATA AD,0E,13,CD,02,0B,D0,0E
1073 DATA AD,0F,13,CD,03,0B,D0,06
1074 DATA 20,89,15,A4,FA,60,98,48
1075 DATA 68,4C,AF,13,A9,04,4C,AF
1076 DATA 13,A9,00,8D,00,FF,A9,20
1077 DATA 8D,00,D4,8D,01,D4,A9,09
1078 DATA 8D,05,D4,A9,0F,8D,18,D4
1079 DATA 60,20,61,15,A9,81,20,9C
1080 DATA 15,A9,80,20,9C,15,4C,96
1081 DATA 15,20,61,15,A9,11,20,9C
1082 DATA 15,A9,10,20,9C,15,A9,00
1083 DATA 8D,04,D4,60,8D,04,D4,A2
1084 DATA 70,A0,00,88,D0,FD,CA,D0
1085 DATA FA,60,END
```

END

Programming/Magazine Article Cataloger

Continued from page 76

```
1230 PRINT"[WHITE,SPACE2,SHFT A]
     RTICLE SUBJECT:[YELLOW]"
     :PRINT SP$AT$(Q)'CKKH
1240 PRINT"[WHITE,SPACE2,SHFT C]
     OMMENTS:[YELLOW]":PRINT SP$MC$(Q)
     :RETURN'DLSH
1250 PRINT"[DOWN2,WHITE,SPACE2,SHFT P]
     RESS [GREEN][[SHFT C]][WHITE]
      TO CONTINUE LISTING OR"'BAPL
1260 PRINT"[SPACE2]PRESS [L. BLUE][
     [SHFT P]][WHITE] TO PRINT OR
     [RED][[SHFT Q]][WHITE]
      TO QUIT"'BAHM
1270 PRINT"[SPACE2]SEARCHING AND
     RETURN TO MENU."'BAPK
1280 KE$="":GET KE$:IF KE$=""THEN
     GOTO 1280'GPBK
1290 IF KE$="C"THEN RETURN'EDFH
1300 IF KE$="P"THEN GOSUB 1330
     :RETURN'FIFB
1310 IF KE$="Q"THEN GOTO 100'EGEB
1320 GOTO 1280'BEIY
1330 REM - PRINT TO PRINTER -'BQKE
1340 OPEN 3,4,7'BFXB
1350 PRINT#3,"[SHFT M]AGAZINE--------
     :";MT$(Q)'BJYI
1360 PRINT#3,"[SHFT M]ONTH/YEAR------
     :";MI$(Q)'BJBJ
1370 PRINT#3,"[SHFT A]RTICLE NAME----
     :";MA$(Q)'BJWK
1380 PRINT#3,"[SHFT P]AGE OF ARTICLE-
     :";MP$(Q)'BJDL
1390 PRINT#3,"[SHFT A]UTHORS NAME----
     :";AA$(Q)'BJTM
1400 PRINT#3,"[SHFT A]RTICLE SUBJECT-
     :";AT$(Q)'BJIE
1410 PRINT#3,"[SHFT C]OMMENTS--------
     :";MC$(Q)'BJHF
1420 PRINT#3:PRINT#3:CLOSE 3'DFUB
1430 PRINT"[WHITE,SHFT P]
     RESS ANY KEY TO CONTINUE."'BAVI
1440 GET KE$:IF KE$=""THEN 1440'ELOF
1450 RETURN'BAQC
1460 REM - SUBROUTINES -'BNAH
1470 PRINT"[CLEAR,DOWN2,WHITE]
     "TAB(7)"[YELLOW,SHFT M]AGAZINE
     [SHFT A]RTICLE [SHFT C]ATALOGER
     [WHITE]":RETURN'DDYQ
1480 PRINT"[CLEAR,DOWN2,CYAN,SHFT P]
     LEASE WAIT...[SHFT S]EARCHING."
     :RETURN'CBPP
1490 PRINT"[CLEAR,WHITE,SHFT S]
     EARCH IS FINISHED."
     :FOR W=1 TO 1500:NEXT
     :GOTO 100'GMJS
1500 PRINT"[CLEAR,DOWN,WHITE,SHFT F]
     OUND A MATCH.":GOSUB 1170
     :GOSUB 1250:RETURN'ELCH
1510 GOSUB 90:IF EF>EC THEN PRINT"
     [RED,SHFT D,SHFT I,SHFT S,SHFT K]
      [SHFT E,SHFT R2,SHFT O,SHFT R]
     #"EF;E$:CLOSE 2:CLOSE 15
     :STOP'ISSP
1520 RETURN'BAQA
```

END

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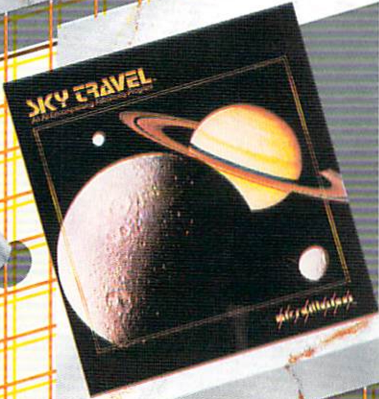
Exploring underground cave



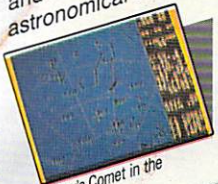
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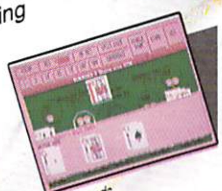
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